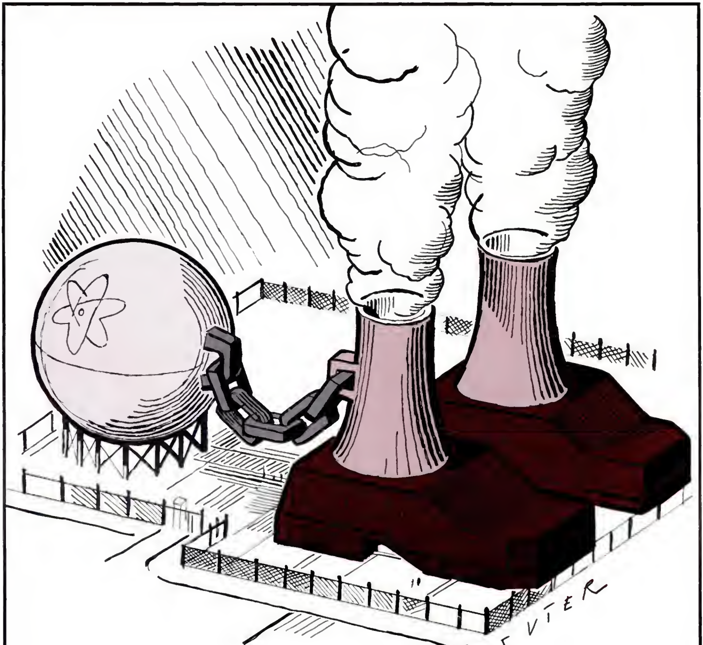
Bulletin of the Atomic Scientists

A magazine of science and world affairs
JULY/AUGUST 1987 $2.50



Nuclear Power's Burdened Future

Pressure on New Zealand • U.S. Arms Trafficking

INSIDE PUGWASH NEWSLETTER

Special newsletter for Bulletin readers on the Pugwash conferences

July/Aug vol.4 No.9

48th Pugwash Symposium

Foreign Debts and International Stability
Lima, Peru, 3-6 February, 1987

A major symposium was held in Lima, Peru, on a subject which appears, at first glance, to be outside the realm of Pugwash. After all, Pugwash was formed when scientists all over the world responded to the 1957 appeal of Albert Einstein and Bertrand Russell. Since that time, scientists from east and west have been meeting at workshops and symposia to come up with practical and technically feasible ideas that can serve as breakthroughs in the nuclear stalemate. Many of the most important initiatives, such as the SALT treaty and the non-proliferation treaty, have their genesis in the work of Pugwash.

Pugwash has become one of the most powerful forces working to keep the world from going over the brink – into nuclear disaster.

Why a symposium on foreign debt

The rationale for the symposium was explained by Martin Kaplan, Secretary-General of Pugwash, as follows:

"It was with understandable hesitation that the Pugwash Council acceded to the request of the Latin-American Pugwash Group to hold a symposium on 'Foreign Debts and International Stability.' The question arose as to whether such a problem lies within the province of Pugwash. It has become apparent that the debt crisis is the most urgent short and medium term problem facing Latin-American countries and many developing countries throughout the world. The problem of nuclear conflict, a principal concern of Pugwash, seems remote to countries whose deprived and stagnant economies face the austerity measures demanded by the international banking system, and the hemorrhaging of capital assets to serve their debts abroad. (And in fact,) armaments play their part in the social and political instability resulting from the debt crisis. For these reasons Pugwash felt justified in devoting a full symposium to this set of issues."

In his report on the symposium, Mr. Kaplan summarizes this connection between the looming "economic winter" of many debtor nations, and the military-expenditure dependent creditor nations.

Debts and the one-trillion dollar arms race

"It is hoped that this effort (the symposium) will contribute in some degree to the resolution of a crisis situation whose continuance threatens profound social disorder in both developing and developed countries. It is interesting to note that the *annual* expenditures on arms approaches one trillion (thousand billion) US dollars, which is equivalent to the total accumulated debts of developing countries today. A halt to and reversal of the arms race, which is one of the principal concerns of Pugwash, would begin to make available badly needed funds for socially constructive purposes."

Proposals

From the Lima conference a series of proposals were made, to draw attention to the most important issues, and to point towards solutions. The 19 participants from 12 countries also contributed papers on subjects such as "Developing country debts in the mid 1980's," "The accumulation of military debt," and "A workable solution to the Latin-American foreign-debt problem." A variety of case studies were also tabled.

The Lima conference is an example of Pugwash's unique ability to address critical issues in a technically expert international forum. This kind of contribution is critical in dealing with the world-wide issues which bear upon the current arms race.

Please consider helping Pugwash. A contribution from you will make possible the continuation of its invaluable work. Simply fill out the coupon below, and send in your (tax-deductible) contribution. We will send you unpublished reports and news, so that you can keep up-to-date on this most important work. Your contribution is important to us, so please – don't delay. Apply to become a *Friend of Pugwash* today.

☐ Please enroll me as a friend of Pugwash and send me summaries of its major meetings. I enclose $100 as my 1987 contribution.

☐ Please enroll me as an associate member of Friends of Pugwash and send me digests of its important meetings.

I enclose $__________

Make check payable to **AEPPF, Pugwash** and mail to William M. Swartz (Chairman, Finance Committee, Pugwash Conferences on Sciences and World Affairs), 1430 West Wrightwood Avenue, Chicago, Illinois 60614. All contributions are tax deductible.

Name __________

Address __________

City __________

State/Zip code __________

EMBOSOGRAPH DISPLAY MFG. CO. VISUAL AIDS DIVISION CHICAGO, ILLINOIS 60614

VOL. 43, NO. 6 ☐ JULY/AUGUST 1987

Bulletin of the Atomic Scientists

The *Bulletin* clock, symbol of the threat of nuclear war, stands at three minutes to midnight.

From the Editors

2 Credibility gulf

Washington Report

3 Politicians and professors: a double standard, *Stephen M. Walt*
5 The Surprise Defense Initiative, *Michael Krepon*

Perspectives

7 Scientists shoot down Star Wars, *William Sweet*
10 The uncommon ground of security debate, *Kosta Tsipis*
12 Was 1945 a break in history? *Michael S. Sherry*

Articles

16 U.S.-Soviet move toward risk reduction, *John Borawski*
20 The Reagan revival of arms deals, *William Hartung*
26 Nuclear power's burdened future, *Christopher Flavin*
32 A Soviet expert discusses Chernobyl, *Valery Legasov*
36 Holes in the U.S. nuclear safety net, *Daniel Utroska*
41 New Zealand paying for nuclear ban, *Kevin P. Clements*
45 The genesis of New Zealand's ban, *Jason Salzman*
50 Star Wars controversy in West Germany, *Thomas Risse-Kappen*

Reviews

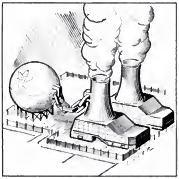
54 Nuclear Fallacy: Dispelling the Myth of Nuclear Strategy, *reviewed by Len Ackland;* Military Objectives in Soviet Foreign Policy, *reviewed by Coit Blacker;* Shadows and Whispers: Power Politics inside the Kremlin from Brezhnev to Gorbachev, *reviewed by Nina Tumarkin;* Book notes

Letters

59 *David L. Wiesen; Victor Perlo, Jamie Kalven; Jeff Smith; Rahul Roy-Chaudhury, Gerald E. Marsh; Donnell W. Boardman, Martha A. Bartter; E.F. Patterson;* Announcements

Nuclear Notebook

63 Trouble with Tomahawk? New medium machine builder; Secret test monitors; New Mirages on the horizon; Production fizzles
64 Graph and table: explosive power of the U.S. nuclear weapons stockpile



This One
ED54-WUN-6Y5A

On the cover: Illustration by David Suter. (See "Nuclear Power's Burdened Future," pages 26–31.)

From the Editors

Credibility gulf

AN IRAQI PLANE attacks the U.S. frigate *Stark* on May 17, killing 37 sailors. Among the Reagan administration's responses is the suggestion that Iran is to blame for not having negotiated an end to the Iran-Iraq war, which started when Iraq attacked its larger neighbor in 1980. The administration then announces that it will allow 11 oil tankers operated by Kuwait, an ally of Iraq, to fly the U.S. flag and receive protection from the U.S. Navy. After saying the Navy will defend against any hostile aircraft, President Reagan then ups the ante for Iran by threatening unspecified retaliation: "I think it's far better if the Iranians go to bed every night wondering what we might do than us telling them in advance."

The president has also been keeping the U.S. Congress and public wondering. Under the 1973 War Powers Resolution, a president is required to consult Congress before deploying American military forces "into hostilities or into situations where imminent involvement in hostilities is clearly indicated by the circumstances." But Reagan claimed he didn't need to invoke the law on this occasion. "I don't see the danger of a war," he told foreign journalists on May 26, in reference to the possibility of warfare between the United States and Iran. "I don't see how it could possibly start. As a matter of fact, we are doing everything we can to try and bring about an end to the [Iran-Iraq] war that we have." This statement is incredible on several counts. How can he not see a danger of war in an area where bloody fighting has raged for seven years? Looking at naval warfare alone, during that period Iraq has attacked many more tankers in the Persian Gulf than has Iran, but of the 30 ships hit by Iran since last September, 25 were on their way to or from Kuwait. Despite its lip service to peaceful settlement, the Iran–contra aid scandal has revealed covert Reagan administration support for both combatants.

While U.S. arms shipments to Iran have presumably now been cut off, this country continues to pump weapons into the area. In fact, as Congress was reeling from the administration's announced plans to put U.S. flags on Kuwaiti tankers, the administration quietly provided a U.S. naval escort for two Kuwaiti merchant ships carrying American-made tanks, artillery, and ammunition. In addition, top administration officials began contradicting each other about U.S. plans and policy in the region. By early June, Congress and the public were left to wonder if the administration had a Persian Gulf policy.

The Iran-Iraq war is indisputably a volatile international tragedy. It is a "confused and complicated war," as President Saddam Hussein of Iraq said in the wake of the *Stark* attack. It is a situation calling for the United States to exert its best diplomatic influence, not become militarily enmeshed. But the Reagan administration, from the beginning, has "shown an affinity for small-scale, low-risk military ventures, although not always with sufficient attention to possible consequences," the *New York Times* recently noted. Thus, the United States successfully invaded the tiny island of Grenada in 1982, while just weeks earlier marine "peacekeepers" became sitting ducks for terrorists in Beirut. U.S. planes launched a single attack on Libya last year, while the administration has preferred to fight against Nicaragua by proxy, using private mercenaries and public deception. The Iraqi attack and subsequent saber rattling momentarily upstaged congressional hearings about the administration's shadow war in Central America. But the president and his appointees have not thought through the possible dire consequences of their actions in the Persian Gulf. —*Len Ackland*

Bulletin of the Atomic Scientists

Founded in 1945 by Hyman H. Goldsmith and Eugene Rabinowitch. Published by the Educational Foundation for Nuclear Science, Inc.

Editor . . . . Len Ackland
Managing Editor . . . . Nancy J. Myers
Art Director . . . . Lisa Grayson
Assistant Editor . . . . William Paul Fiefer
Manuscript Editor . . . . . . Ruth M. Grodzins

Business Manager . . . . Vicki L. Smith
Circulation Manager . . . . . Nancy L. Watson
Promotions Director . . . . Cathryn Plys
Administrative Assistant . . . . Jeanne Malcolm

Board of Editors: Bernard T. Feld, Franklin A. Long, David Holloway, Deborah Shapley.

Board of Directors: Leonard Rieser, chairman; Russell Hardin, vice-chairman; Aaron Adler, treasurer; Len Ackland, secretary; Betty Bumpers, Gloria Duffy, Bernard Feld, Dennis Flanagan, Hellmut Fritzsche, Howard Hiatt, Victor Rabinowitch, Stuart Rice, Emma Rothschild, Ezra Sensibar, Lloyd Shore, John A. Simpson, John Steinbruner, Kosta Tsipis, Bernard Weissbourd, Herbert York; Walter J. Blum, legal counsel.

Sponsors: Robert R. Wilson, chairman, *Samuel K. Allison*, Edoardo Amaldi, Robert F. Bacher, David Baltimore, Paul Berg, Hans A. Bethe, *Detlev W. Bronk*, Owen Chamberlain, S. Chandrasekhar, *A.H. Compton, E.U. Condon*, James W. Cronin, *Farrington Daniels*, Carl Djerassi, Paul Doty, Sam Edwards, Manfred Eigen, *Albert Einstein*, Brian Flowers, *James Franck*, Richard L. Garwin, Donald A. Glaser, Sheldon Lee Glashow, Bentley Glass, Marvin L. Goldberger, *S.A. Goudsmit*, Gerhard Herzberg, Dorothy C. Hodgkin, *T.R. Hogness, Alfred Kastler*, Ryogo Kubo, Joshua Lederberg, Leon M. Lederman, *F.W. Loomis*, Reimer Lüst, *Philip M. Morse*, Marcos Moshinsky, Nevill Mott, *H.J. Muller, J. Robert Oppenheimer*, W.K.H. Panofsky, Linus Pauling, G.B. *Pegram*, Rudolf Peierls, Gerard Piel, John C. Polanyi, I.I. Rabi, Oscar Sala, Abdus Salam, Julian Schwinger, Frederick Seitz, John A. Simpson, Cyril S. Smith, *Leo Szilard*, Toshiyuki Toyoda, *Harold C. Urey*, V.F. Weisskopf, C.F. v. Weizsäcker, Jerome B. Wiesner, Hugh C. Wolfe, Sewall Wright, *J.R. Zacharias*.

All correspondence should be sent to 5801 S. Kenwood, Chicago, IL 60637. Manuscripts must be submitted in duplicate; enclose return postage. Allow 6 weeks for change of address; include an address label from a recent issue and your new address. The **Bulletin of the Atomic Scientists** (ISSN 0096-3402) is published monthly except July and August. Second class postage paid by the Educational Foundation for Nuclear Science at Chicago, IL 60637, and additional mailing offices. **Subscription rates: Individuals**—U.S., 1 year, $24.50; 2 years, $44.50; 3 years, $63. Canada and Mexico add $4.50; other countries add $7.50 per year. **Institutional**—U.S. 1 year, $29.50; 2 years, $52; 3 years, $73. Canada and Mexico add $4.50; other countries add $7.50 per year. **Single copies**—cover price plus postage. **Airmail rates**—available on request. Claims for missing issues must be dated within 90 days (domestic) and 9 months (foreign) of issue requested. **POSTMASTER:** Send address changes to the **Bulletin of the Atomic Scientists**, 5801 S. Kenwood, Chicago, IL 60637. Copyright © 1987 by the Educational Foundation for Nuclear Science, 5801 S. Kenwood, Chicago, IL 60637. (312) 363-5225. Newsstand distribution in the U.S. by Ingram Periodicals, Inc., 347 Reedwood Dr., Nashville, TN 37217.

Washington Report

Politicians and professors: a double standard

by Stephen M. Walt

IN HIS FAREWELL address in 1796, George Washington reminded his fellow citizens that "honesty is the best policy." If the events of recent months are any guide, that maxim has few adherents in the city that bears his name. When Gary Hart's presidential campaign succumbed to his personal indiscretions, he blamed the press and the political process rather than his own inability to tell the truth. Similarly, as Congress began untangling the web of deceit surrounding the Iran-contra affair, attorney Leonard Garment, who represents former National Security Adviser Robert McFarlane, publicly questioned whether efforts to get at the truth were even desirable. Writing in the *Washington Post*, Garment argued that "everyone has always known that politicians lie," and that the real issue was to distinguish between the "permissible lies of legitimate politics," which he deems acceptable, and "criminal lying," which he presumably rejects. In the morally flexible Washington world, old-fashioned honesty is taking a beating.

These events help remind us of the principal difference between the world of scholarship and the world of policy. It has long been fashionable for academics to view life in Washington with disdain, at least until they receive their first government post, just as Washingtonians like to dismiss "ivory tower" academics for being irrelevant or naive. But these caricatures fail to grasp the real difference. Academics have no monopoly on brilliance or virtue, and many policy makers deserve high marks for their intellectual gifts and personal integrity. The difference lies in the value each community places on honesty and the penalties each imposes on deceit. For all its faults, the academic world does one thing well: it values truth above all else and imposes stiff penalties on fraud. When students are caught cheating, they are certain to face disciplinary action. A scholar found guilty of fraud is certain to suffer professional disgrace. In politics, by contrast, distortion and deception are business as usual. Penalties for "misstatements" are usually mild or nonexistent. Indeed, the ability to promote self-serving myths—remember the "window of vulnerability" and "supply-side" economics?—is often an important ingredient of political success.

Nowhere is this more clearly revealed than in the Reagan administration's ability to perpetuate false or misleading assertions in the face of overwhelming contrary evidence. All presidents seek to mold public opinion, but Reagan and company have been unusually successful in convincing us that two plus two equals five. Their success reveals a crucial feature of intellectual life in Washington: the mechanisms for correcting myths and penalizing those who promote them are extremely weak. Consider a few examples:

- *The Reagan administration is serious about arms control.* This myth has survived despite considerable evidence to the contrary. Led by many officials who have long opposed arms control on principle, the administration has abandoned SALT II, deployed several new and particularly destabilizing weapons, sought to sabotage the Anti-Ballistic Missile Treaty, exaggerated Soviet violations, scoffed at a lengthy Soviet moratorium on underground tests, and issued a series of one-sided proposals intended to prevent progress rather than promote it. A modest agreement on Euromissiles may now be in sight, but the overall record shows a minimal commitment at best.
- *Star Wars will make nuclear weapons obsolete.* The administration's own experts have stated that an effective area defense against nuclear weapons is impossible. This appraisal was recently seconded by an independent panel assembled by the American Physical Society. Yet President Reagan still speaks of a peace shield that will protect U.S. cities. Although this myth has no factual basis, it helps sustain public and congressional support for Star Wars.
- *Nicaragua is exporting revolution to El Salvador and elsewhere.* The administration has yet to offer a shred of evidence to support this repeated accusation, which is used to justify its support for the contras.
- *The Sandinistas are the principal violators of human rights in Central America.* By exaggerating human rights abuses in Nicaragua, the administration has sought to increase public support for its undeclared war. Although a number of abuses have occurred, they pale in comparison with the thousands of innocent civilians murdered by the

---

Stephen M. Walt is an assistant professor of politics and international affairs at Princeton University and currently a resident associate at the Carnegie Endowment for International Peace in Washington, D.C.

governments of Guatemala and El Salvador, countries that receive U.S. economic and military aid.

- *Aid to anticommunist guerrillas in Nicaragua, Angola, and elsewhere helps promote democracy.* In fact, these recipients of U.S. aid have little commitment to democracy. In the Orwellian language of the Reagan Doctrine, such groups are the "moral equivalent of the Founding Fathers," and helping guerrillas murder civilians, which is what guerrilla war entails, is synonymous with defending freedom.

- *President Reagan opposes excessive government spending.* This myth is the most peculiar of all. As a result of Reaganomics, the federal deficit has more than doubled since Reagan took office. Moreover, the administration *opposed* the Gramm-Rudman-Hollings Deficit Reduction Act. Yet the president continues to call for a constitutional amendment that would require a balanced budget, although he has never submitted one himself. His motive: shift blame for the deficit onto Congress.

These examples show that politicians can do what scholars cannot: they can deliberately seek to deceive without being penalized for fraud. Why is this so easy to do? At least four factors are at work.

A scholar found guilty of fraud is certain to suffer disgrace. In politics, distortion and deception are business as usual. The ability to promote myths is an ingredient of political success.

First, presidents enjoy enormous advantages in shaping the public debate. Presidential statements receive widespread publicity, while critics must work hard to gain equal attention. A president can marshal ample resources to promote his ideas: for instance, by assembling misleading stattistics or by inundating the media with the official line. This is what happened after the Reykjavik summit; an obvious blunder was salvaged through energetic "spin control." Whistleblowers within the government can be discouraged from bringing the truth to light if they fear that honesty will jeopardize their jobs. And because most citizens lack the information necessary to evaluate competing claims, the combination of presidential prestige and constant repetition can keep bankrupt ideas in circulation.

Second, unlike the scholarly community, Washington tolerates deception because it is an accepted part of political salesmanship. As Dean Acheson once put it, advocacy must be "clearer than the truth." Where would lobbyists be if they had to rely solely on unbiased analysis? What policy makers will present the pros and cons of a given decision when seeking public support? In Washington, fraud is forgiven because it is such a common practice. The Hart affair and the Iran-contra scandal reveal that only criminal or sexual misconduct is likely to cause a politician much trouble; selling the public a package of myths isn't penalized at all. Those who dreamed up the window of vulnerability were never penalized for their successful con game; indeed, they are still influential in Washington.

A third reason why myths survive is a sort of Gresham's law of politics: bad analysis drives out the good. Once an issue becomes politicized, interested parties marshal self-serving advocacy, which often masquerades as objective analysis, in order to defend their positions. Serious scholarship is drowned in the flood of politically inspired propaganda. This phenomenon helps explain the Reagan administration's staying power. As Sidney Blumenthal has shown in his book *The Rise of the Counter-Establishment*, the emergence of a well-organized and well-financed network of conservative think tanks like the Heritage Foundation and the American Enterprise Institute, combined with journals like *Commentary, The American Spectator,* and *Policy Review,* has provided Reagan with a vocal array of defenders. Nor is this just a right-wing phenomenon, although conservatives are probably better at it. The uncritical endorsement of the nuclear winter hypothesis by many advocates of disarmament shows that leftists can play similar games. The prevalence of pseudoscholarship in the political arena also helps myths survive.

Finally, the media deserve some of the blame as well. Despite its lofty self-image, the fourth estate is rarely capable of evaluating policy debates accurately. Because whatever the president does is news, and because journalists receive much of their information from government sources, they inevitably tend to parrot the official line. Increasingly, the format of modern journalism is images, not ideas, because reporting must be trimmed to fit the nightly hour of prime-time news. And because journalism is big business, entertainment value is more important than accurate analysis. Thus Gary Hart's complaints were not without some basis; more effort was spent on probing his personal peccadillos than on examining his policy proposals. The desire to make the news entertaining may help explain why rhetorical slugfests between political opponents or, worse, between rival journalists, have become a popular form of political journalism. Just watch "The McLaughlin Group," "This Week with David Brinkley," "Nightline," or "The MacNeil-Lehrer News Hour." Such shows are always entertaining and occasionally revealing, but their contribution to accurate public perception is overrated. Instead, they provide yet another forum for political pitchmen to sell their damaged goods.

For all these reasons, intellectual life in Washington rarely meets scholarly standards. This is not to idealize the ivory tower, which has serious problems of its own. Scholars often pursue research of little practical value, and some academics are as capable of deceit as the crookedest politician. The difference is that when scholars are guilty of fraud they are much more likely to be punished. And we should not forget that dishonesty within the policy community is costly: when myths go uncorrected and when their promoters go unpunished, misguided initiatives are more likely to emerge. Even worse, they are likely to persist until we are rudely awakened by reality. ☐

The Surprise Defense Initiative

by Michael Krepon

EVER SINCE THE STRATEGIC Defense Initiative's surprise unveiling in March 1983, the program has sparked one unexpected development after another, including a newfound superpower interest in abolishing nuclear weapons, the incredible events at the Reykjavik summit, and the administration's novel reinterpretation of the 1972 Anti-Ballistic Missile (ABM) Treaty. At least one more surprise may be in store: a presidential decision to withdraw from the ABM Treaty. President Ronald Reagan can accomplish this by invoking Article XV of the treaty, which permits withdrawal due to "extraordinary events" upon six months' notice. SDI enthusiasts must resort to this desperation tactic because the program has begun to sputter, a victim of its own erratic course, serious technical uncertainties, and vigorous political opposition.

The defense currently championed by SDI supporters—a layered system using homing rockets or kinetic weapons—is similar to one long promoted by Lt. Gen. Daniel O. Graham and his High Frontier organization. Pentagon officials were deeply skeptical of this concept before President Reagan's peroration about making nuclear weapons "impotent and obsolete." The Air Force's assistant secretary for research and development, Thomas L. Cooper, testified in 1982 that the rapidly deployable "off the shelf" components favored by High Frontier wouldn't be effective. Moreover, according to Cooper, the price of the proposed defense was woefully underestimated: "Our understanding of the system's implications and costs would lead us to project expenditures on the order of $200–$300 billion in acquisition costs alone for the proposed system"—instead of the $15–$35 billion advertised by High Frontier.

The very morning President Reagan announced his vision of a defensive shield, John L. Gardner, director of defensive systems for the Pentagon's research chief, provided a different cost estimate for the High Frontier concept: $50–$75 billion. The reasons for the discrepancies remain obscure. Gardner also questioned the survivability of a kinetic-weapons defense and discussed its susceptibility to likely Soviet countermeasures. He concluded: "There would be a considerable amount of work yet to be done before this Nation should undertake a system of that kind." The administration was also unenthusiastic about laser and particle-beam weapons before the president's Star Wars speech. Pentagon officials repeatedly advised against accelerating these programs, warning against their great cost, technical uncertainties, and their extreme vulnerability to attack if based in space.

After the speech, however, the administration's efforts and the public's attention focused on directed-energy weapons. President Reagan continued to offer a vision of an "astrodome" defense that garnered wide public support despite expert skepticism. Other officials favored more limited "point" defenses of military installations, but that did not generate great enthusiasm. SDI supporters were thus left in a quandary: what was most feasible wasn't popular, and what was most popular wasn't feasible.

WITHIN THREE YEARS, support for futuristic defenses had crested, and the promotional efforts of members of Congress like Senator Malcolm Wallop, Republican of Wyoming, increasingly fell on deaf ears. Despite progress at the weapons laboratories, American science was not ready to produce effective defenses based on directed-energy weapons, as a succession of authoritative studies predicted. An April 1987 American Physical Society report best summed up this situation: "Even in the best of circumstances, a decade or more of intensive research would be required to provide the technical knowledge needed for an informed decision about the potential effectiveness and survivability of directed energy weapon systems." [See article by William Sweet in this issue.]

By the time the American Physical Society's report was released, SDI enthusiasts in the Pentagon and the Congress had swung their support behind kinetic devices, the only conceivable means to fulfill their hope for early SDI deployments. The administration's earlier championing of lasers was conveniently forgotten. Now the objective was to get the president to approve limited deployments that could complicate Soviet targeting plans and thus enhance deterrence. Like so many other issues in the Reagan administration, this effort was couched in semantics that obscured the stakes involved. For SDI enthusiasts, the question was one of "phased" deployments—on the face of it, a sensible approach for a program of this complexity. But skeptics saw the early 1987 push for phased deployments—seven years before any deployments would even begin—as an attempt to circumvent the principles developed by special adviser Paul Nitze, approved by President Reagan, and announced in February 1985. According to these criteria, defensive systems had to be survivable and cost effective at the margin; that is, new defenses would have to cost less than new offenses. "If the new technologies cannot meet these standards," Nitze said when announcing them, "we are not about to deploy them."

This end-run around the Nitze criteria coincided with another attempt by administration hardliners to reinterpret

---

Michael Krepon is a senior associate at the Carnegie Endowment for International Peace in Washington, D.C. and a contributing editor of the Bulletin.

the ABM Treaty. In both instances, Pentagon officials, with help from the Arms Control and Disarmament Agency, sought to overturn solemn and soothing declarations of the administration's intent that had been crafted with great care after earlier bureaucratic battles. In the treaty interpretation case, Secretary of State George Shultz told a meeting of the North Atlantic Assembly in October 1985 that the controversy was moot: "Our SDI research program has been structured and, as the President has reaffirmed . . . will continue to be conducted in accordance with a restrictive interpretation of the Treaty's obligations." His declaration held for one year, after which the Pentagon—with the full support of Shultz's own legal adviser, Judge Abraham Sofaer—launched another assault on the restrictive interpretation. Similarly, after repeatedly affirming that he was merely in charge of a research program whose tests could be conducted within the restrictive treaty interpretation, the SDI director, Lt. Gen. James Abrahamson, conveniently proposed in May four tests that could only be conducted under the broad interpretation; otherwise, he said, a first-phase deployment would be delayed two years and would cost $3 billion more. Members of Congress, as well as the United States' friends and adversaries, have learned that this administration's policy statement have a very short half-life.

General Abrahamson's first-phase deployment would require a down payment of $40–$60 billion, although precisely what this would purchase or lead to remains obscure. Abrahamson's trial-balloon proposal suggested an initial deployment of 300 "space garages" housing 3,000 kinetic weapons. Congressional critics estimate that a first-phase deployment of this kind would destroy no more than 16 percent of Soviet warheads launched in all-out attack, even if the Kremlin were to cooperate by not increasing its offensive forces in response to SDI deployments.

The Nixon administration faced a similar bind when it considered deploying an ABM system in the early 1970s. Defensive deployments could only be partially successful and could be rendered ineffective by increases in Soviet offenses and other countermeasures. This situation led Edward Teller to bow to "political realities" in 1972 when the Senate was contemplating consent to the treaty. Writing in the *National Review*, Teller noted: "We might decide to spend a minimum of an additional $100 billion for defense in the next five years, and thus build a full-scale antimissile defense system. No great gift of prophecy is needed to know this will not happen. The only alternative is to ratify the treaty."

Once again, political and technical realities argue against "thoroughly effective" strategic defenses. Significant majorities in the Congress have noted the administration's erratic course and have refused to support large SDI funding increases or to endorse early deployments. New York Republican Representative Jack Kemp's attempt in May to rally the faithful on the latter issue garnered just 122 votes. The administration's effort to concoct an ABM Treaty negotiating record that permits space-based tests has fared little better, particularly after running afoul of Georgia Democratic Senator Sam Nunn. Backed into a corner, SDI supporters have begun to turn on each other. At a High Frontier gala in March, Senator Wallop lashed out at the "highjacking" of SDI by "fretful geniuses" who "mixed strategic defense, which was supposed to be a cure for the ravages of arms control, with the arms control process itself. They gave the cure a massive dose of the disease."

STRATEGIC FUNDAMENTALISTS like Wallop and Kemp have few options left. If they cannot insure SDI deployments, they can at least try to kill the treaty, the most important obstacle to their vision of American security.

As in the past, arms control opponents can be expected to frame the issue as a loyalty test to President Reagan's most heartfelt national security initiative: National Security Council members may be asked, yet again, if they are "for" SDI or "against" it. Since "realistic" SDI tests cannot be conducted within the narrow treaty interpretation and since the Senate appears unwilling to adopt the broad interpretation, the entire treaty will have to go. Star Wars supporters can also argue that President Reagan should protect his legacy by making a tough decision that his successor will be unable to make for himself: ending compliance with an agreement that has been incontrovertibly violated by the Kremlin. An impending agreement on intermediate-range nuclear forces would be all the more reason for arms control opponents to attack the ABM Treaty frontally.

This scenario may sound farfetched, but it is no more improbable than the effort to recast the ABM Treaty's negotiating record. The Reagan Administration has repeatedly surprised its critics by its audaciousness: it uses different decision-making criteria from its critics.

If SDI supporters force a decision on withdrawing from the treaty, they may not succeed. The quality of presidential advice has improved since Donald Regan served as White House chief of staff and the National Security Council consisted of Caspar Weinberger, Admiral John Poindexter, William Casey, Kenneth Adelman, and George Shultz. On the other hand, no one currently around the president will question his vision of SDI, and cautionary arguments against taking unilateral action against the treaty, for fear of political fallout at home and abroad, are wearing thin. If hardliners succeed in framing the treaty withdrawal issue as a vote on SDI, they have a fighting chance to win. ☐

THIS COULD BE THE MOST INCREDIBLE, ASTRONOMICAL THING EVER WITNESSED BY MANKIND...
YOU MEAN THE STAR WARS PROJECT?
RESEARCH LAB
STAR WARS
...NO, THE PRICETAG
RESEARCH LAB
HOFOSS

Dan Hofoss, Canada

Scientists shoot down Star Wars

by William Sweet

THE AMERICAN Physical Society issued a report on April 23 saying that it will be at least ten years before scientists and engineers know enough to make an intelligent decision about the feasibility of developing a missile-defense system based on directed-energy weapons such as lasers or particle beams. The report, commissioned in November 1983 and prepared by a high-level group of independent physicists, implied that it will not be possible to actually build an ABM system based on directed-energy weapons until well into the next century, at the earliest.

The report is both a climax and an anticlimax in the debate over President Reagan's Star Wars vision. It is a climax because it represents a definitive verdict on the near- and medium-term prospects for a truly effective missile-defense system; that is, one that would at least stand a chance of stopping almost all enemy missiles and warheads, even if it could not render nuclear weapons altogether impotent and obsolete. As such, the report substantiates Senator Sam Nunn's conclusion, following the Reykjavik summit, that Reagan—in rejecting a grand compromise on strategic and intermediate-range missiles for the sake of keeping the way clear for Star Wars—had given up two birds in hand for one in the bush.

The report is an anticlimax because the Strategic Defense Initiative Organization and its leading supporters such as Defense Secretary Caspar Weinberger already had decided, well in advance of the report's release, to de-emphasize work on directed-energy weapons and to promote early deployment of an ABM system based on rocket interceptors. Whether they did so in anticipation of the report's conclusions or whether they simply came to similar conclusions in parallel with the study group really does not matter. What counts is that the Physical Society study is largely irrelevant to the debate that has shaped up over whether the 1972 treaty should be ditched in order to develop and deploy a system of rocket interceptors. It does, however, drive home the point that the debate is over the treaty and rocket interceptors, and nothing else.

When President Reagan called, in March 1983, for long-term research into defensive programs that would make nuclear weapons obsolete, he did not specifically mention lasers or particle-beam weapons. But publications such as *Aviation Week and Space Technology* had been drawing attention since the late 1970s to alleged Soviet breakthroughs in directed-energy technologies. And it seemed obvious that an effective ABM system would have to depend on revolutionary technologies, not on mere improvements of the technologies that had been judged inadequate just a decade earlier. This is why the term "Star Wars," evoking images of beams from the George Lucas films, got firmly attached to the Strategic Defense Initiative, despite Reagan's complaints. And this is why the American Physical Society, acting on a recommendation from its panel on public affairs, decided to focus its study exclusively on directed-energy weapons and to ignore more conventional systems, which destroy missiles by launching rocket interceptors at them.

BY THE TIME THE PANEL completed its first draft in June 1986, Star Wars had become a hotly contested issue in the scientific communities, and scientists had taken numerous opportunities to express their attitudes toward the program. Specifically:

- As of June 1986, 3,700 faculty members and 2,800 graduate students in the physical sciences and engineering, including the majority of faculty in 59 top physics research departments, had signed a pledge not to accept funds for work on SDI. The pledge was drafted by groups at the University of Illinois and Cornell University.
- An anti-SDI petition drafted by several eminent scientists at national and industrial laboratories had attracted more than 1,000 signatures. A petition favoring SDI, drafted by a group associated with Frederick Seitz of Rockefeller University, former president of the American Physical Society and the American Academy of Sciences, attracted about one-tenth as many signatures.
- A survey of American Physical Society members, commissioned by the Union of Concerned Scientists and released in March 1986, found that two out of three considered it "very unlikely" that a missile-defense system could effectively defend selected population centers, and that four out of five thought it very unlikely that any system could defend the whole population.
- William A. Shurcliff, a retired Harvard physicist, informally surveyed about a third of the 1,500 members of the National Academy of Sciences in early 1986. Shurcliffe found a more than 20-to-one majority agreeing that "the proposed Star Wars program would not provide an effective shield, would not defeat a high-altitude attack, would not prevent delivery of A-bombs by other methods . . . and would not protect our European allies."
- A much more rigorous survey of academy members, which excluded those in the humanities, social sciences, and biology, also found a 20-to-one majority who considered it unlikely that an effective and survivable missile-defense system could be built within the next 20 years. This

---

William Sweet lives in New York City and writes frequently about the politics of arms control and disarmament.

poll, conducted by a social sciences research unit at Cornell, took great care to formulate the questions neutrally and garnered a 75 percent response rate.

Despite the growing evidence that overwhelming majorities of scientists found the president's vision implausible, the public did not seem to be accepting the message. Opinion polls persistently found the public much more supportive of SDI and much more optimistic about its prospects than were the experts. Soviet alarm about the program perhaps lent it credibility: this was clearly a factor with newspaper editors, who regularly credited Star Wars with having brought the Soviets back to the negotiating table.

Under the circumstances it was not hard for the public and media to minimize the importance of the statements from the scientific communities. First, there was the obvious possibility that scientists were dressing up political conviction or speculative opinion in the garb of scientific exactitude. Writers and editors may have noted, for example, that the authors of the Cornell-Illinois pledge called the program "ill conceived," "dangerous," and "misguided"; they did not specifically complain, as scientists, that it would not lead to anything useful. And in truth many signatories of the pledge would have been even more passionately opposed to Star Wars if they believed it might lead to something useful. Many feared that even a half-successful program would tempt U.S. planners to seriously contemplate a first strike and would feed Soviet fears of surprise attack.

But the Illinois-Cornell pledge did not purport to be a statement of scientific opinion about Star Wars. The pledge was drafted in response to claims by SDI officials that applications for research grants from the academic community showed that the program was winning acceptance at universities, and it was intended to be primarily a political statement. Because the signatories were scientists, however, the pledge must have been perceived as a scientific claim, and to many peace-loving editors in peace-loving American communities it must have seemed absurd to call a system that would protect the United States from nuclear attack "misguided" and "dangerous."

The passion with which longstanding critics of missile-defense systems criticized the Reagan administration's new proposals also must have fed suspicions that conviction or bias was being draped in scientific pomp. And when the critics were attacked with equal passion by scientists who supported the program—and sometimes were forced to back off on points to which they had attached importance—it would have reminded press and public that scientists too are fallible and would have created a strong impression that Star Wars is an area in which scientific truth has yet to be established. Philip Anderson made these points in an article published by the Princeton alumni magazine in September 1985 and reprinted just this year in *Le Monde Diplomatique.*

Public opinion experts say that few social groups are more respected than scientists in the United States. Yet, when one considers the relations among scientists, press, and public it is obvious that they are riddled with ambivalences. While it probably is true that most scientists cherish freedom and respect democracy and democratic institutions, they often find it difficult to conceal a certain intellectual condescension, and they cherish the special skills and knowledge that make their counsel sought in the corridors of power. They have a "schizophrenic attitude" toward the public, as Lisbeth Gronlund, a postdoctoral physicist at Cornell, observes. "In a way they want to exclude the public" so as to preserve their monopoly on informed opinion, says Gronlund, an author of the Cornell pledge.

The press's habit of soliciting a counteropinion for every opinion is particularly irksome to scientists, who are accustomed to thinking about realities simply in terms of whether they are true or not. Particularly irritating to scientists—and justifiably so—is the press's habit of giving more space, time, and weight to official opinion than to independent views, regardless of relative expertise and bias.

Press and public, for their part, resent any implication that scientists are uniquely qualified to make decisions on their behalf, and when scientists disagree with one another, people find it hard to know what importance should be attached to the relative numbers on one side or another. "Can you really do numbers on science?" asks Spencer Klaw, editor of the *Columbia Journalism Review.* "Are scientists really pure disembodied intellects? Of course not!" Klaw points out that supporters of nuclear power in the scientific community often cite polls in which an enormously high proportion of radiation physicists, some 97 percent, are found to believe that the public has nothing to worry about. "Should the press report that at every opportunity and ignore the 3 percent who disagree?" Klaw asks.

For years the public has been bombarded almost weekly by the conclusion of one scientific study group or another counseling in favor of this or against that. Done right, such studies say what is to be expected, within some range of probabilities, given certain contingencies that are well defined and vividly described. All too often, however, such reports simply say that people should from now on forego some pleasure regardless of the importance they may attach to competing values, or that they should accept some risk regardless of evidence in their own backyards.

As various groups of scientists have reported their views on Star Wars during the past two years, it was apparent that they were trying harder to circumscribe what they felt qualified to say as scientists and to specify what the exact value of their opinions might be to the general public. Thus, when scientists at national and industrial laboratories followed up on the Cornell-Illinois pledge with an anti-SDI petition, they did not make any claims about the ultimate merits of the program. Instead, they simply claimed that Star Wars had "grown into a major program without the technical and policy scrutiny appropriate to an undertaking of this magnitude."

When the Pentagon's SDI officials argued that the program's critics were not qualified to have an opinion about it, the Union of Concerned Scientists instructed pollster Peter Hart to ask American Physical Society members how well qualified they considered themselves. Exactly 60 percent said they knew a great deal or quite a bit about Star Wars and another 29 percent said they knew "some." Similarly, after Shurcliff's poll was dismissed because of methodological flaws and because he included social scientists and humanists in his sample, a research unit at Cornell did a meticulous replication of his survey, excluding everybody but physical scientists and mathematicians, and reached the same results.

Even then, supporters of Star Wars associated with the Science and Engineering Committee for a Secure World, a group established in 1986 to lobby for the program, found reasons to dismiss the findings. Astrophysicist Robert Jastrow of Dartmouth College, the author of *How to Make Nuclear Weapons Impotent and Obsolete*, was quoted in a press release issued by the committee as saying, "The overwhelming majority of these scientists know as much about defenses against missiles as an eye doctor knows about taking out your appendix."

Peter Stein, a Cornell physicist, responded in an interview to Jastrow's claim: "An eyedoctor knows a hell of a lot about taking out an appendix—a lot more than you or I. How do you stop the bleeding? What about the anesthetic? There are lots and lots of things he knows. And if somebody were proposing a new kind of surgery that was radically different, I think that an eyedoctor would be in a whole lot better position to make a judgment about it than the general public."

Stein, who was a prime mover behind the poll of academy members, added: "It's very common to ask distinguished scientists their general opinion of a program that they are themselves not directly involved in. There are all kinds of peer review panels that ask: Do you think this is a wise area for science to go into?"

A JUDGMENT FROM A PEER review panel always represents a kind of "collective subjectivity," as University of Chicago physicist Robert Sachs puts it, and it is almost always possible to quibble with a panel's composition. Questions could be raised about whether anti-SDI pledge signers, randomly selected physicists, or even National Academy members constitute a suitable review group for Star Wars.

When it comes to the American Physical Society's directed-energy weapons panel, however, it is hard to imagine a more qualified peer review group. Every member of the group had security clearance and all were given access to relevant classified information. The 15-member panel included scientists from five laboratories where Star Wars research is performed, one U.S. Military Academy scientist, many scientists prominently associated with defense consulting—and not one member publicly known as an opponent of Star Wars. The group was co-chaired by Nicolaas Bloembergen of Harvard University, who won the Nobel Prize for work on lasers, and C.K.N. Patel, a laser inventor and executive director of research at AT&T Bell Laboratories.

Confronted with the conclusions of this group, the Strategic Defense Initiative Organization (SDIO) and independent supporters of Star Wars have been reduced to claiming that the findings have been made obsolete by new advances, and that they are in any case irrelevant. The claim that new advances have superseded the report is shameless: the government stalled release of the report for more than six months while SDIO and other agencies tried to delete large sections. But apart from that, it is a ridiculous claim to make about a report in which the main point is that large numbers of closely related, major advances would need to be made before directed-energy weapons could seriously be considered for development and deployment.

"Most crucial elements required for a [directed-energy weapons] system need improvements of several orders of magnitude," the study says. "Because the elements are interrelated, the improvements must be achieved in a mutually consistent manner. We estimate that even in the best of circumstances, a decade or more of intensive research would be required to provide the technical knowledge needed for an informed decision about the potential effectiveness and survivability of directed energy weapons systems."

The complaint that the society's study is irrelevant because SDIO has already shifted the emphasis of its activities to developing a rocket interceptor system is not altogether without merit, but it overlooks and minimizes the fact that the study has settled one whole area of debate and helped focus public attention on what is currently at issue. It is absurd to claim, as some Star Wars supporters evidently are doing privately, that the study excluded rocket interceptors and concentrated on directed-energy weapons because they were an easy target. At the time the study was commissioned, everybody thought they were the essence and driving force in Star Wars.

Directed-energy weapons "were talked about as though they were already here and at the same time as the wave of the future," says Charles Hebel, a Xerox Corporation physicist who chaired the society's public affairs panel when it launched the study. "And those who knew about it, were involved in the thing, realized that [the Defense Department] was not talking straight about it, that there was a lack of public information about it." Hebel says there was no pressure at the time to include kinetic systems in the study, because they were not considered to involve novel principles of the kind that would require a physicist's opinion. The Defense Department had concluded that kinetic systems "didn't cut the mustard" as candidates for ABM defenses, according to Hebel.

The society's study concludes an important chapter of the SDI controversy, and the scientists who produced the report or who earlier expressed reservations about space defenses deserve commendation. But the study is also anticlimactic in that the controversy now continues over rocket interceptors. And because these interceptors involve no revolutionary new principles, the role of physicists in this controversy will necessarily be smaller. The physicists still will have important things to say about details, but in a sense it is time for them to return to the laboratories. To the extent that they decide to participate in the final battle over ABM systems and the ABM Treaty, their most important contributions will be made not as physicists or scientists as such, but as citizens. ☐

The uncommon ground of security debate

by Kosta Tsipis

DURING ITS FIRST SIX years the Reagan administration has launched major increases in the military budget and has pursued the acquisition of new arsenals of strategic nuclear and conventional weapons systems. Under Reagan, the United States has made little discernible progress toward arms control. Instead it has abandoned SALT II, one of the existing arms control agreements, and is challenging another, the Anti-Ballistic Missile Treaty. In this context the significance of progress toward an agreement on medium-range missiles is severely diminished.

The recognizable profile is of a government making every effort to escalate the nuclear arms race. This policy has evoked disapproval from past government officials who advocate a more considered defense policy, and alarm and consternation among arms control advocates who believe we must hold on to the treaties we have and use them as a basis for evolving new ones.

At bottom, these differences lie in the unspoken premises on which each group bases its judgment. Where are the origins of the reasoning that leads some to say the United States must have bigger and better military systems, while others say that more will in fact decrease security? And what about the centrists who stand between these two? Examining each group's undeclared assumptions might be far more useful than the current acrimonious debates about individual weapons procurements.

A small study group, whose members were Dr. Howard Hiatt of Brigham and Women's Hospital and the Harvard Medical School, and Penny Janeway and myself, both of the Massachusetts Institute of Technology Program in Science and Technology for International Security, began such an examination. I shall sketch out here the framework that we devised for our purpose. It consists of three distinct sets of analysis, aim, and expectation—the underlying premises that support very different defense policies. Because I have tried to keep the positions distinct, with little overlap, they may seem unrealistically simple, but I trust not excessively so. The goal is to capture the premises, often unstated, perhaps erroneous, on which each of these positions is based.

The logic of the hard line. According to this view the United States is a very large and powerful country with a worldwide reach and powerful allies. The Soviet Union is a very large and militarily powerful country, but it is politically, technologically, and economically retarded. Its global presence is almost exclusively military in derivation, and it is bent on using this military power to expand the communist system, run from Moscow, to the rest of the world. Internally, however, the life of Soviet citizens is deprived and strained. The Soviet economy is such that it has no leverage in the global economy. Its polity is failing. The Soviet Union consists of numerous ethnic groups exerting centrifugal forces on the nation. The connectives are coercive and fragile. The Soviet gross national product is about half that of the United States, and productivity is low. But the zeal to dominate appears to persist.

The hardliners believe that the Soviet Union is bound to lose an all-out competition with the United States, and that such competition can therefore resolve the conflict between the two nations. So arms control agreements are out, because such agreements would result in reduced arms production, thus benefitting the Soviet Union by letting it off the hook economically. The United States should rather arms-race the Soviets to the extent possible; put maximum political, diplomatic, and economic pressure on them; deny them technology; oppose them at every opportunity and in every forum; and build nuclear weapons that are always superior to theirs—a situation to which they must respond. Avoid war by all means, but keep maximum pressure on the Soviets, to make sure that, at the very least, Soviet expansion is prevented.

Sooner or later one of two things will happen. One possibility is that the United States will become decisively superior militarily, so that it can control Moscow's behavior in international matters and negate the Soviet threat of world domination. The other is that the Soviet Union will collapse internally: from economic exertion it could not sustain, depletion of its natural resources, disaffection of its citizens and of its allies, and revolution by its various ethnic components. Capitalism, the natural economic human state, will prevail, with the U.S. economy as its flagship.

The logic of the liberals. This logic—the underlying premises of those who comprise the arms control community—may be described as follows:

The advent of nuclear weapons has made war obsolete as a means of resolving conflict between countries that possess them. The Soviet Union, the United States' main adversary, has a nuclear arsenal equal to that of the United States. Nuclear explosives will lead only to the certain destruction of both sides, so they must never be used. In their presence combat is meaningless, since it can never proceed to a win-lose outcome that resolves conflict—ideological, geopolitical, and economic—between the superpowers. The solution to the conflict must be evolutionary.

The internal failures of the centralized communist system are mandating changes toward a less rigid structure, a more humane polity. With these changes, the goal of converting

Kosta Tsipis directs the Program in Science and Technology for International Security at the Massachusetts Institute of Technology.

the world to communism atrophies. The resolution of the U.S.-Soviet conflict can be furthered by helping the Soviet Union to evolve naturally out of its present structure and to integrate itself into the community of nations as a more benign, open, and democratic parliamentary system.

In the doves' logic, this implies two things: that the nuclear arms race has no useful purpose and should stop, and that the attitude of the United States and the West in general must be one of cooperation rather than of competition. In that framework, nuclear explosives should be limited to enough to insure minimum deterrence, a few hundred on each side. They should cease to be an integral part of U.S. operational defense planning.

Arms control agreements signed to date have been mostly accounting arrangements aimed at managing rather than eliminating the arms race. New ones should be pursued that would drastically reduce the nuclear arsenals and the risk of crises, thus providing an international environment that would ease the preoccupation of the United States and the Soviet Union—as well as other nations—with their national security. The U.S. military budget could be cut by 30 to 40 percent, and the procurement of weapons systems rationalized to serve the actual, considered military needs of the country rather than to support parochial interests, perceptions of U.S. superiority, or the arms race.

With second-echelon countries—Taiwan, Korea, Singapore—gaining an economic lead on the Soviets and the Chinese gradually liberalizing their economy, the Soviet Union must also be anxious to make its economy more efficient and productive. The Gorbachev regime has already started along this path; this explains its desire to attenuate the arms race and establish a stable environment conducive to economic cooperation. The West must grasp this opportunity to resolve the conflict with the Soviet Union by assisting in its movement away from orthodox Marxism.

The logic of the pragmatic center. This logic concludes that neither of the previous views is correct. It parallels the liberal position in thinking that the conservative faction has an overly optimistic view of U.S. strength, according to which the U.S. economy can afford the costs of a confrontational policy, without damaging the domestic standard of living or the United States' international standing. In this view, the right also underestimates the inertial mass of the Soviet Union and the endurance of its population. Insulated from external influences and protected by a well-fed military establishment, a neo-Stalinist Soviet Union can remain an irritant to the United States, if not a threat, into the indefinite future. Or the Soviets may get from other industrialized countries the economic and technological help they need to pursue modernization, and ignore the U.S. weapons buildup. A further concurrence in ideas between the liberals and the pragmatic center is that collapse may occur in the United States before it happens in the Soviet Union, because of the vulnerability of the U.S. economy to the open international marketplace and the expectations and limited patience of its people.

The centrists concur with the right in thinking that the liberal recipe is utopian, requiring fundamental shifts in political practices and institutions and indeed in human nature. The center further believes that it is internally inconsistent and politically unrealistic to expect the capitalist system, based on competition and self-interest, to allow changes that would damage large special U.S. interests, such as the military and the arms industry.

The centrists are distinct from the other two groups, however, in believing that the conflict between the United States and the Soviets *cannot* be resolved. It is the traditional conflict between number one and number two in any human assemblage and therefore irreducible. So attention should focus on how to manage this conflict in order to maintain stability and predictability; how to avoid both crises and very large military expenditures that could harm U.S. domestic institutions and standard of living. On the one hand, the effort should be to manage the arms race so that strong parochial interests are not hurt and therefore do not oppose centrist foreign and defense policy—that is, consensus-building. On the other hand, the United States should strive to minimize the kinds of crises that can lead to war while retaining its present advantages vis-a-vis the Soviet Union.

Translated into policy, this means business as usual:

- military budgets at about current levels;
- production—after negotiated numerical limits in arms control agreements similar to SALT I and II—of new strategic and conventional weapons systems that insure stability but create psychological advantages for the United States;
- maintenance of a state of managed tension with the Soviet Union.

The risk is that the system may run away and a war may erupt, but the centrist position is that it is the best we can do and, perhaps more significantly, it is the only policy with guaranteed political support.

The logic of charting the three logics. These three distinct axes of thinking are not meant to represent the actual positions of any particular person or group, but rather to reflect the underlying reasoning, whether stated or even recognized, of groups of people who would most often wind up agreeing with each other on individual issues of defense policy, weapons acquisition, and military doctrine. By sketching out the premises in this way, it may be possible to understand certain things not recognized before about one's own positions or about ways to negotiate with people who disagree. It is like using a Cartesian coordinate system of three orthogonal axes in order to describe more lucidly the notion of objects in space and time. These axes do not constitute reality, but they help explain the present reality and perhaps predict future occurrences.

Would it not be wiser to debate the premises directly rather than the policies that follow from them? If the American people can come to some understanding of which line the country should pursue, then it will be easier to agree on policies consistent with that direction. ☐

Was 1945 a break in history?

by Michael S. Sherry

WHEN THOUSANDS of American incendiary bombs fell on Tokyo the night of March 9, 1945, they created a cataclysm that, in ferocity and fatalities, rivaled the atomic attacks of August. Witnesses described experiencing a "frightful Pentecost," a revolt of nature that seemed beyond human culpability and understanding, and a parade of maimed and charred survivors too hideous for others to watch and too dazed themselves to comprehend what had happened.

Multitudes of the dead lay about the city, the burned bodies "looking like misshapen lumps of charcoals," the asphyxiated "like so many fish left gasping on the bottom of a lake that has been drained." During the several hours that the firestorm raged, Tokyo gave the world a preview, in slow motion and stop action, of the fury telescoped into a few minutes at Hiroshima and Nagasaki.[1]

Tokyo's fate that night was no secret at the time, and even today many people have a hazy sense of the destruction unleashed by warplanes before the atomic bomb's advent. Yet to most of us, most of the time, the novelty and scale of the nuclear dilemma impose an overwhelming sense of discontinuity: no previous problem in war and military force seems to approach the current situation. Just as they seemed in 1945, Trinity and Hiroshima appear in retrospect to have created a rupture in history.

In several ways, that sense of discontinuity is justified. Nuclear weapons carried the novel dangers of radiation and fallout and represented a quantum leap in the capacity to unleash blast and fire. Perhaps even more novel was the certainty of success built into the atomic weapon. An incendiary firestorm—dependent on rare combinations of tactical surprise, aircrew skill, and favorable weather and ground conditions—was, as Freeman Dyson has said, "like a hole in one in a game of golf," a sort of planned accident.[2] An atomic explosion, for all the exquisite preparation that preceded it, was a planned certainty once set in motion.

The politics of nuclear weapons reinforced technology in maintaining the perception that 1945 was the Great Divide in the history of war and international relations. Advocates of arms control or disarmament sought to mobilize popular support for their cause by emphasizing the unprecedented gravity of the nuclear problem. Proponents of deterrence found obvious virtue in stressing the destructiveness of nuclear weapons: maximum danger would yield maximum deterrence or, as Winston Churchill put it in 1955, "safety will be the sturdy child of terror, and survival the twin brother of annihilation." Supporters of outright use of nuclear weapons walked a finer line. They often minimized the novelty of nuclear arms in order to legitimize their use, but of course their stance lacked credibility unless the weapons themselves posed some novel lethality.[3]

WITHOUT DIMINISHING the nuclear dilemma, we can now better see it in historical context. Indeed, regarding the dilemma not as an aberration but as an expression of fundamental, longstanding forces in Western civilization underlines its gravity. Some tenuous lines, at least, can be drawn across the rupture in history that was 1945.

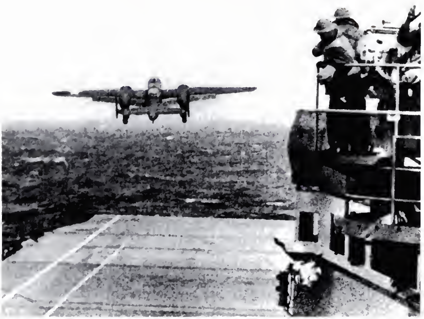
Even as methods of destruction, "conventional" and nuclear bombing overlapped more than most people understand. Nuclear weapons kill and destroy by blast, heat, and fire, just as their predecessors did, as well as by radiation and fallout; and they are carried by airplanes and rockets, just as their predecessors were. The individuals and organizations that used conventional bombing were often the same ones that pioneered atomic weaponry. And whatever the enormous difference in killing potential, pre-atomic technologies have been more lethal in practice, if only because in actual use they have seemed so much more acceptable.

Conventional bombing of Germany and Japan alone killed perhaps two-thirds of a million people, as opposed to roughly a quarter of a million deaths from the two atomic attacks. Aerial attacks elsewhere during World War II, and in countless places before and after that war, swell the nonatomic bombing toll to a far larger number. Indeed, atomic policy makers in 1945 were troubled by the blurry line between conventional and atomic technologies. Robert Oppenheimer noted on May 31 that the result of "one atomic bomb on an arsenal would not be much different from the effect caused by any Air Corps strike of present dimensions." He and others worried about how to deliver a decisive atomic blow when the U.S. air force was already "laying waste all the main Japanese cities."[4]

In due time, of course, the rapidly growing numbers and efficiency of nuclear weapons sharpened the blurry line. But after 1945 striking continuities persisted in how people perceived the peril and promise of aerial warfare. Confronted in that year with a novel technology, most people offered well-rehearsed perceptions of the aerial dilemma.

It could not be otherwise. As a technical device the bomb may have created a break with the past, but those who learned of it could not break with their own pasts; they had to draw on some storehouse of responses, some familiar ways of patterning reality, to understand the new. An inert

Michael S. Sherry is associate professor of history at Northwestern University in Evanston, Illinois. This article is based on his book, The Rise of American Air Power: The Creation of Armageddon *(1987).*



A U.S. B-25 bomber leaves the deck of the U.S.S. *Hornet* in preparation for the April 18, 1942, Doolittle raid on Tokyo. Such bombardments demonstrate that attitudes toward employing mass destruction as a military tool had changed before the atomic bombing three years later of Hiroshima and Nagasaki. *Courtesy AP/Wideworld Photo*

technical device, the bomb could not dictate nuclear culture and policy. Rather, culture and policy had to make something of the bomb.

Arguments about the potential and proper management of air power, for example, often followed the same lines after 1945 as before it. Much as they had during the debates that swirled around outspoken air-power advocate Billy Mitchell in the 1920s, officers and politicians in the nuclear era quarreled sharply: over which of the armed services should control aerial technology and which could best survive its advances; over the accuracy and potency of new weapons and the vulnerability of nations to a paralyzing first strike; over the merits of deterrence and the rewards of preemptive attack. The far more arcane technology and terminology of the nuclear era obscured, but could not erase, underlying continuities in the way that choices were framed.

Even contemplation of the cataclysmic potential of nuclear weapons drew upon the forebodings of the prenuclear era. Long before World War II, Winston Churchill had warned that the bomber gave humankind the means to "accomplish its own extinction," and predictions of aerial apocalypse peppered the writings of a generation's futurists, pundits, and politicians, especially when they imagined bombers loaded with gas or germ weapons.[5] Atomic energy powerfully validated these forebodings of technological annihilation, but it did not create them.

AT THE SAME TIME, many people derived a comfort they rarely acknowledged from the aerial terror they readily imagined. The horror of bombing, they strained to believe, would also prevent it from occurring. Confronting the accelerating tensions and technologies of the 1930s, commentators in Europe and the United States doubted that nations would ever unleash their bombers upon enemy cities. The risks of uncontrolled escalation and the aggressor's own annihilation seemed too great, while the benefits of blasting cities seemed too slight in view of the bomber's indifferent record in Spain and China during the 1930s.

"Wholesale bombing for sheer terrorism would be a costly, worthless gesture," as the February 1939 issue of *Colliers* magazine put it. "It is a political catchword to scare you, but you won't find it in the militarist's practical handbook." Surely, it seemed, rational leaders would calculate that their expensive and hardly inexhaustible supply of bombers would be better deployed against military objectives—or better yet, would calculate that war itself had become too risky. Anglo-French capitulation to Hitler's threats of aerial attack during the Munich crisis of 1938 seemed to buttress that reasoning, however grim the outcome from other points of view.

Thus the dichotomy of doomsday or deliverance that so much characterized later predictions about the outcome of the nuclear dilemma was well established before those weapons ever materialized. Horrifying technologies of air war threatened doomsday. But doomsday was unthinkable, and perhaps those technologies would deliver nations from the very peril they posed—by deterring war; even, ultimately, by forcing a universal sense of community. On both sides of the 1945 divide, such reasoning also discouraged attention to messier possibilities lying between the poles of doomsday and deliverance: the chance that rational leaders might miscalculate; that irrational leaders might do the calculating; that nations might gradually accept the bombing of cities, neither grasping at deliverance nor plunging overnight into doomsday.

Indeed, miscalculation, irrational leadership, and gradual acceptance all characterized bombing during World War II. But that massive, grisly experience in the middle ground of reality did little to arrest the habit of seeing either total destruction or salvation. However sophisticated, even Jonathan Schell's compelling book *The Fate of the Earth* baldly restated the dichotomy. Humankind, Schell wrote, faces a choice between two paths in the nuclear era: "One leads to death, the other to life."[6]

The dichotomy of doomsday or deliverance contributed to another continuity in thinking about air war: a recurrent focus on the psychological and symbolic rather than the practical attributes of aerial weapons. Since actual war was unthinkable, new weapons and sometimes entire air forces were justified by the appearances they would create—the threat they would convey, the resolve they would imply, the status they could confer—rather than by the missions they would carry out. Often enough, therefore, nations first built weapons in order to impress others, and only later, if at all, figured out their practical function in war.

Such posturing characterized the nervous years between the wars, when the great powers displayed "shop window" air forces whose impressive frontline strength disguised weaknesses in technology and readiness. Hitler's bluff with the *Luftwaffe* was hardly unique in this regard, since the United States sought to imitate it in 1941 by scaring Japan with U.S. bombers. When nuclear weapons made resort to war even more dangerous, the temptation to posture and intimidate only deepened. Those weapons were deployed, leaders proclaimed, to enhance resolve and credibility, not to destroy. Even war did not always dissolve the preoccupation with postures: In World War II and Vietnam, politicians and commanders sometimes saw their bombing as a means to signal their resolve and demoralize their enemies, even if actual destruction of their foes was hard to measure.

THE FOCUS ON appearances coincided with another recurrent habit regarding air power: the tendency to ignore its consequences as a real weapon. Bombers and missiles were often seen as an abstraction—an idea, a force in international relations, a symbol of danger or determination—whose physical destructiveness remained beyond the reach of imagination. In wartime, the geographic, bureaucratic, and emotional distance between victims and perpetrators gave bombing a peculiar air of unreality for the latter, especially for Americans, never bombed in their homeland and far removed from their enemies. "One is separated from the surface of that island as if he were viewing it on a motion-picture screen in a theater on the other side of the world," Charles Lindbergh noted after he flew a combat mission in the Pacific war. "In modern war one kills at a distance, and in doing so does not realize that he is killing."[7]

If a combat flier sometimes could feel that way, leaders and populations back home were at a distance impossible for the imagination to traverse. And nuclear weapons—fired only twice in anger, shrouded in secrecy, described in arcane terms and theories that have taken on a life of their own—exist to an even greater degree only in the mind's eye, objects of morbid fascination but incomprehensible as instruments of destruction.

The destructiveness of aerial weapons is both their most obvious quality and the one most difficult to comprehend. The habit of looking away from the killing and destruction has contributed to their growth and encouraged their deployment. Viewed solely as weapons of war, they would be built in dismaying but still finite numbers, since scientists and strategists can measure with some precision the forces required to destroy enemies. Viewed as emblems of national status (or shame), as pawns on a strategic or arms control chessboard, as signs of resolve, or as neurotic objects of what Helen Caldicott called "missile envy," aerial weapons are endlessly and easily assembled and multiplied. Such subjective criteria offer discouragingly few guidelines by which to determine what is "enough." They have invited endless escalation in armaments.[8]

EVEN THOSE WHO concede the continuities outlined here between the pre- and post-Hiroshima eras may still wonder if they offer instruction on the current dilemma, or only a curious footnote to it. Fond of continuities, historians still are notoriously wary of deriving from them lessons for the present. This historian will venture, albeit cautiously, into that forbidden territory.

Perhaps the most obvious lesson is that the current dilemma arises not only from weapons themselves, but from our ways of thinking about them—our entrapment in categories and alternatives inherited from an earlier time. The habit of seeing the aerial weapon as offering only polarized possibilities is probably the most determinative and dangerous. That habit left the generation of World War II unprepared to anticipate, comprehend, and arrest the ragged escalation of city bombing that characterized that war: destruction that was neither ultimate nor decisive but perhaps a horror worse than what that generation had imagined. Similarly, it is easy today to take comfort in commonplace scenarios of "spasm" nuclear warfare; surely nations will deliver themselves from that kind of holocaust. Such reasoning ignores the possibility of some limited or unevenly escalating nuclear conflict, or the still grimmer possibility that the doomsday threat might fail to deter even the spasm war.

The dichotomy of doomsday or deliverance is not only misleading; it may also be politically paralyzing. Phrasing the choice as one between life and death confounds us. The smaller steps perhaps within grasp seem so inadequate, or so unpredictable in outcome, that we despair of taking them. The call to make such a choice often comes across as an attempt to terrorize nations and peoples into right conduct, into taking the virtuous step toward disarmament. That kind of psychological bludgeoning, as Paul Boyer has shown, often either numbs or infuriates its audience.[9]

The alternative is to accept, even embrace, the uncertainty inherent in the rise of aerial warfare. In truth, we cannot know whether the future offers only deliverance or doomsday—or some unpredictable occurrence in the middle ground between the two. Limited nuclear war, partial disarmament, nuclear terrorism, conventional wars whose destructiveness approaches nuclear proportions: such possibilities are ignored in a manichean presentation of what the future may hold. Recognition of this exasperating uncertainty may do more to deter nations from war, and finally nudge them toward disarmament and harmony, than imagining only the ecosphere's destruction or the abolition of nation-states, much as those possibilities must be considered.

Uncertainty not only defines our future; it should shape our sense of how that future will be decided. In the past, observers of aerial warfare often gave in to the understandable temptation to simplify the decision-making process. They wrote as if a Hitler or a Truman or a Churchill almost singlehandedly decided to launch this campaign or bomb that city. Decades of commentary on the "decision" to drop the atomic bomb on Japan illustrated this temptation especially well. Narrowing the alleged decision to a moment of supreme moral choice, participants and historians telescoped years of scientific, bureaucratic, and moral momentum into one instant of responsibility. That view offered both retrospective and prospective comfort. If the atomic attack on Japan was the product of a discrete choice by a a few men at a definable moment, then the nation as a whole was not responsible. And if so circumscribed, the decision to bomb Japan came to be seen as almost reversible: if only Truman had known such and such, if only Stimson had realized this or that, the dread deed might have been avoided. Thus the act need not be repeated in the nuclear age that Americans had entered. Next time, the decision might go the other way.

In reality, intricate processes created the great bombing campaigns of World War II, the atomic attacks that climaxed it, and the arms race that followed it. Each development certainly resulted from choices, but none from a moment of choice. At most, leaders ratified inclinations long developing in bureaucratic systems; often, even their formal approval was not required. Momentous actions were rarely the products of agonized decision making. Instead, they emerged from a slow accretion of large fears, thoughtless assumptions, confused bureaucratic pressures, and incremental initiatives.

We might recall this process if now we imagine a moment of supreme decision at the brink of some future war, when a leader, fingers dangling above the nuclear button, ponders what to do. Nearly eight decades ago, H.G. Wells foresaw a "universal guerrilla war" in the air in which rational calculations and concerted decision making had little role.[10] As Wells knew, we set our course by the ways in which we think—or decline to think—about war, and by the apparatus we put in place during the months and years before the supreme crisis. In that crisis, few real decisions may remain to be made. Just as one generation learned to accept bombing as the nightmare that could not happen, so too has this generation accepted the bomb itself. The parallel, hardly comforting, may be instructive. ☐

1. Quotations from Michael S. Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven: Yale University Press, 1987), pp. 276–78; for a fuller description of the Tokyo raid, see pp. 274–82.
2. Freeman Dyson, *Disturbing the Universe* (New York: Harper and Row, 1979), p. 28.
3. Churchill, as quoted in Theodore Ropp, *War in the Modern World* (New York: Collier Books, 1962), p. 404; see also Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (New York: Pantheon Books, 1985).
4. Notes of the Interim Committee meeting, May 31, 1945, in Folder 100, Harrison-Bundy Files; notes on initial meeting of Target Committee, April 27, 1945, in file 5 (subseries I), reel I, Manhattan Engineer District records.
5. Barry D. Powers, *Strategy without Slide-Rule: British Air Strategy, 1914–1939* (London: Croom Helm, 1976), pp. 133, 134.
6. Jonathan Schell, *The Fate of the Earth* (New York: Avon Books, 1982), p. 231.
7. Charles A. Lindbergh, *The Wartime Journals of Charles A. Lindbergh* (New York: Harcourt, Brace, Jovanovich, 1970), p. 920.
8. On the problem of subjective criteria, see, for example, Richard Barnet, *Real Security: Restoring American Power in a Dangerous Decade* (New York: Simon and Schuster, 1981).
9. See Boyer, especially chaps. 4–9.
10. On Wells, *The War in the Air* (1908), see Sherry, pp. 8–9.

Bulletin

READER SERVICE

Send a gift

To give a gift subscription, enter the name and address of the recipient and attach your magazine label below. We will send a gift card in your name.

☐1 year $24.50 ☐2 years 44.50 ☐3 years 63.00
Canadian and Mexican subscribers add US $4.50 per year for postage. Other foreign subscribers add US $7.50 per year for postage.

Name (please print)
Address
City State Zip
I enclose a check for ______ ☐Please bill me.

Change of address

Enter your NEW address. Be sure to attach your magazine label below. Please allow 4 weeks.

Name
NEW Address
City State Zip

Renew your subscription

Indicate the term of your subscription and attach your magazine label below.

☐1 year $24.50 ☐2 years 44.50 ☐3 years 63.00
Canadian and Mexican subscribers add US $4.50 per year for postage. Other foreign subscribers add US $7.50 per year for postage

I enclose a check for ______ ☐Please bill me.

Attach label here.

Send to: *Bulletin of the Atomic Scientists* Subscription Department, 5801 South Kenwood Avenue, Chicago, Illinois 60637.

U.S.-Soviet move toward risk reduction

The new draft accord on nuclear risk reduction centers establishes an important channel for confidence-building information exchange. But it remains to be seen whether the centers will facilitate substantive arms control and cooperation.

by John Borawski

A TENTATIVE agreement reached May 4 to establish joint nuclear risk reduction centers in the United States and the Soviet Union stands as a modest contribution to arms control that some day could be the foundation for broader measures to make the world safer from nuclear terrorism and accidental or intentional nuclear war. While only a first step, the agreement is a potentially significant milestone in U.S.-Soviet relations and a welcome evolutionary development in Soviet arms control policy.

The accord sets up nuclear risk reduction centers ("nerks" in bureaucratic jargon) in both countries to serve as transmission points for all bilateral confidence-building measures and as forums for annual joint review meetings. The U.S. delegation was co-chaired by Col. Robert Linhard of the National Security Council and Richard Perle, then assistant secretary of defense. The Soviet delegation was led by Aleksei A. Obukhov, deputy chief of the Soviet mission to the Geneva nuclear arms talks.

The centers will contain modern facsimile communications equipment similar to that being added to the hot line emergency link, which both sides agreed to upgrade in July 1984. But details as to their exact locations (the U.S. site perhaps being at Fort Meade, Maryland), precise functions and capabilities, staffing mix (presumably each will have diplomatic, military, and intelligence personnel), relationship to the hot line (which is reserved for emergency messages from the heads of state), and future roles have not been disclosed. Indeed, it may be months before the accord is made public, as the final text may not be signed until the next Reagan-Gorbachev summit. Even then there may be classified understandings, given the sensitive nature of the subject.

Nevertheless, a White House statement hailed the agreement as "a practical measure that will reduce the risk of conflict between the United States and the Soviet Union, particularly nuclear conflicts that might result from accident, misinterpretation or miscalculation." The risks of such a conflict may be highly remote, in the sense of, say, one side misreading a large-scale missile test launch as a strike against its national civilian and military command authorities. As a 1987 Brookings Institution/Harvard University Center for Science and International Affairs study posits, however, although "the operations of nuclear forces in peacetime have been managed without serious incident . . . the prevention of war cannot yet be considered a secure accomplishment."[1] Moreover, as warning systems become technologically more complex, the risks of a mechanical malfunction triggering combat may actually be increasing, particularly as each side's concerns about vulnerability to a first strike persist. In addition, perhaps the greatest risk of war lies not in deliberate, premeditated aggression but in inadvertent escalation triggered by a misreading of intentions and "defensive" military activities in a crisis.

The centers will serve as information channels for current and future confidence-building agreements. They will affect at least three existing accords:

- The 1971 Accidents Measures Agreement, which states that all parties must report accidental or unauthorized nuclear weapons incidents, interference with missile-warning systems, missile launchings in the direction of the other side or with trajectories that carry them beyond the firing nation's territory, and the presence of unidentified objects.
- The 1972 Incidents at Sea Agreement, which prohibits provocative naval behavior and states that all parties must report actions on the high seas—missile tests, for example—that represent a danger to ships and aircraft.
- The 1979 SALT II Treaty, Article XVI, which expands on the 1971 accidents accord and states that all parties must report all intercontinental ballistic missile launches and all single launches with flight paths that carry them beyond the firing nation's borders, regardless of the missile's direction.

Information that Washington and Moscow exchange in accord with the concluding document of the 1986 Stockholm Conference on Confidence- and Security-Building Measures and Disarmament in Europe—notifications of military exercises and troop concentrations, invitations to observers to watch the exercises, and requests to make inspections—will not be channeled through the centers. The Soviet Union notified the United States a few days after the draft agreement was reached that it preferred to retain normal diplomatic channels for such data, perhaps for symbolic reasons, given the 35-nation disarmament conference constituency.

Both sides proposed additional confidence-building measures at the Strategic Arms Reduction Talks (START) and the Geneva talks covering intermediate-range nuclear forces (INF) in 1982, but the working group established just before the talks were temporarily suspended in late 1983 has yet to reconvene. From 1983 through 1985 President Reagan also proposed a joint military communications link (which

---

John Borawski, formerly a policy analyst with the Meridian Corporation, Alexandria, Virginia, is the author of From the Atlantic to the Urals, *a history of the Stockholm Conference on Disarmament in Europe (forthcoming).*

evolved into the risk-reduction centers), high-capacity data links between embassies and capitals, exchanges of five-year military development and procurement projections, regular military-to-military contacts, and a multilateral agreement providing for consultation in the event of a nuclear incident involving third parties.

In addition, arms control advocates have suggested further steps affecting nuclear forces, including a limit on the number and size of annual missile launches; constraints on air and naval exercises; agreed norms of military behavior applicable to land, air, naval, and space activities and various procedures for managing crises. All aim, some more directly than others, at reducing both the risks of premeditated surprise attack and the risks of an inadvertent confrontation sparked by miscalculation or misunderstanding.

THE CONCEPT of nuclear risk reduction centers is hardly novel. Henry Kissinger appears to have first elaborated the idea in 1960 with regard to the then-fashionable notion of accidental nuclear war. Writing in the July 1960 *Foreign Affairs,* Kissinger proposed "Joint Western-Soviet offices . . . in Moscow and Washington with their own communications equipment" as a "means by which the nuclear powers are able to inform each other rapidly and convincingly that an ambiguous action was not intended to be the prelude to a surprise attack. . . . Everything may depend on the ability to reassure the opponent clearly and convincingly." His notion drew, of course, from Thomas Schelling's initial work in the late 1950s on establishing a U.S.-Soviet hot line.

The contemporary history of such centers, however, begins in 1982 with the efforts of Senator Sam Nunn, Democrat of Georgia, who requested a Strategic Air Command study on the idea. The study concluded that neither the United States nor the Soviet Union might be able to determine the country of origin of a third-party nuclear attack, and that this might precipitate an inadvertent superpower conflict. Joined by Senator John Warner, Republican of Virginia, and the late Senator Henry Jackson, Democrat of Washington, Nunn introduced an amendment to the 1983 Defense Department Authorization Act calling for a study on improving the containment and control of nuclear weapons use, particularly during a crisis. It specifically requested, among other things, an evaluation of the idea of a multinational crisis control center to monitor and contain the use or potential use of nuclear weapons by third parties, including terrorist groups, and of a forum in which information about these matters could be exchanged.

Thus, as William L. Ury, director of Harvard University's Nuclear Negotiation Project, described one vision of the centers: "Trained staff from each nation would monitor crises around the clock, relaying vital information in person, as well as by telephone, computer, and teleconferencing. In time of crisis, the center would function somewhat like the emergency room of a hospital, providing a place and resources to enable the principals to deal with a critical situation as effectively and expeditiously as possible."[2] So, for example, if a nuclear incident of unknown origin occurred and both nations went on elevated military alert, the center's staff could expeditiously exchange and verify reassuring information that these moves were not necessarily directed against each other, and could work together to determine the origin of the incident. Moscow's providing information to Washington in 1977 about South Africa's apparent preparations for a nuclear test is often cited as an example of the type of cooperation out of mutual interest that the centers could foster. Of course, if either side tried to deceive the other, the centers could reveal inconsistencies and thus deter such conduct.

Despite these benefits, on April 11, 1983, Defense Secretary Caspar Weinberger issued a disapproving report on the idea of bilateral or multilateral crisis-control centers or information-sharing facilities. They were susceptible to disinformation tactics and were unwieldy, he said. The report, did, however, propose a bilateral joint military communications link between the National Military Command Center in the Pentagon—which is the central point where the president exercises command over nuclear weapons—and its Soviet counterpart, for urgent communications and information exchanges related to confidence-building measures. Eventually it could evolve into a forum for consultations on nuclear terrorist activity and on resolving military incidents, thus supplementing the hot line and normal diplomatic channels. A multilateral agreement was also proposed for consultation—not necessarily cooperation—if a nuclear incident involving a terrorist group occurred. President Reagan endorsed these proposals on May 24, 1983.

Confidence-building measures have been the only arms control accords reached by the Reagan administration.

At first the Soviets were not receptive to the link, viewing it as a distraction from arms reductions and a safety valve that could legitimize adventurism. But on June 14, 1985, a common understanding to the 1971 Accidents Measures Agreement was concluded in the Standing Consultative Commission. The commission, established in 1972 by Moscow and Washington as a vehicle for trading information on compliance with SALT I, outlined procedures for urgent consultations via the hot line in the event of nuclear terrorist incidents.

Not satisfied with the Defense Department report, Nunn and Warner kept pressing for risk-reduction centers. They formed a working group that included, among others, former Defense Secretary James Schlesinger, former National Security adviser Brent Scowcroft, *Foreign Affairs* editor William Hyland, and strategic analyst Barry Blechman. The group's final report disagreed with the administration's decision not to adopt the centers as such (although the joint military communications link did incorporate important features of the admittedly vague risk-reduction center idea). On June 15, 1984, the Senate unanimously passed Resolution 329 urging President Reagan to pursue negotiations on the centers.

The ideas for risk-reduction centers that Nunn and Warner's working group generated were refined further as additional analysts joined the effort. The indefatigable William Ury wrote a popular book, *Beyond the Hotline,* and crisscrossed the country advocating public support for the centers.

The administration formally accepted the specific concept of nuclear risk reduction centers, albeit in a limited form, on August 26, 1985—more than a year after Resolution 329—during a meeting between Nunn and Warner and National Security Adviser Robert McFarlane. The administration agreed that the centers would be established in Washington and Moscow, linked by communications equipment equivalent to the 1984 hot-line upgrade, and staffed on a 24-hour basis by military and diplomatic personnel, and that they would link communications for all required military and arms control notifications. The centers would also serve as meeting places for ministerial-level visits and other diplomatic discussions related to risk reduction and confidence-building measures, Incidents at Sea sessions, high-level military exchanges, National War College exchanges, and other discussions that would promote a dialogue on nuclear doctrines, forces, and activities. Designated liaison officers from the Soviet embassy would get periodic, escorted access to the U.S. center, and vice versa.

Nunn and Warner presented this outline to General Secretary Mikhail Gorbachev at a September 3, 1985, meeting in the Kremlin. The senators also included a list representing their views of how the centers might evolve over time—a list to which the August 26 agreement that they made with the administration did not extend. These future roles were:

- discussing procedures to follow if there are incidents involving the use or threatened use of nuclear weapons by unauthorized parties;
- maintaining close contact during nuclear incidents or threats precipitated by unauthorized parties;
- exchanging information about events that might lead to the acquisition of nuclear weapons, materials, or equipment by unauthorized parties;
- jointly staffing each center with U.S. and Soviet personnel (an idea vigorously opposed by the office of the defense secretary);
- upgrading communications capabilities to include voice and teleconferencing systems.

During his meeting with the senators, Gorbachev stated that the nuclear risk reduction center idea "deserves attention." And on November 21, 1985, at the Geneva summit, Reagan and Gorbachev jointly endorsed exploration of the idea.

ADMITTEDLY, THE ACCORD on centers is a limited accomplishment. Although the lack of details about its actual content rules out a useful analysis now, it is probably best to regard this agreement as only a first step. After all, if the centers' primary function will simply be to serve as clearinghouses for confidence-building measures and not as places for dialogue about matters of mutual concern, their value may be debatable at best, given the channels already in place. Certainly, the more interesting features relate to the second part of the Nunn-Warner paper, particularly with respect to the growing potential for nuclear terrorism; for example, the centers could form part of a global terrorist watch, perhaps even entailing joint U.S.-Soviet nuclear emergency search teams. Some would also like to see centers with joint staffing, direct phone and video links, and some jurisdiction in crisis management as well as prevention.

The important point, nevertheless, is that a base has been created that builds on existing agreements and mechanisms like the hot line, the National Military Command Center, and the State Department Operations Center. As Sally Horn, director of verification policy in the office of the defense secretary and a principal player in the risk-reduction center negotiations, has observed: "The building blocks which we must continue to seek include . . . explicit substantive agreements . . . to discuss military doctrine and focus and/or to exchange information in the event of unexplained nuclear incidents or in the event of military activities related to nuclear forces that could be misconstrued; and the establishment of an architecture, including technical mechanisms and operational procedures . . . to facilitate dialogue at a level below head of government."[3]

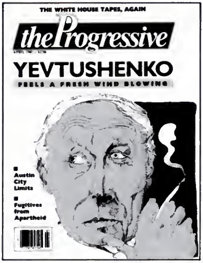
Nuclear risk reduction centers are a tool to carry out agreements, so the substance of what they are to do rather than the centers themselves is the key issue. Without a doubt there is room for improvement in confidence-building measures. Existing notification measures can be expanded to cover more activities, and, more importantly, can actually constrain potentially threatening operations. Newer areas such as nuclear terrorism are also ripe for elaboration. In the larger context, however, without greater undersanding about permissible norms of behavior, and commitment to joint action in areas of mutual interest, the centers may be doomed to sterility. As a Soviet arms control negotiator stated, to agree on confidence-building measures in isolation from the political relationship would be "to erect a roof when the house still has no foundation."[4]

It should also be stressed, nevertheless, that, with the hot-line upgrade, the Stockholm agreement, and now the nuclear risk reduction centers, confidence-building measures have so far proved the only arms control agreements attained during the Reagan administration. Insofar as such accords have value on their merits and as stimulants to structural arms control, progress on this front must be welcomed. ☐

---

1. Ashton Carter, John Steinbruner, Charles Zraket, eds., *Managing Nuclear Operations* (Washington, D.C.: Brookings, 1987), p. 13.
2. William L. Ury, *Beyond the Hotline* (Boston, Mass.: Houghton-Mifflin, 1985), p. 59.
3. John Borawski, ed., *Avoiding War in the Nuclear Age: Confidence-Building Measures for Crisis Stability* (Boulder, Colo.: Westview, 1986), p. 55.
4. Igor Andropov, quoted in Bruce Allyn, "Soviet Views of CBMs, *Avoiding War in the Nuclear Age,* p. 120.

Take a **FREE** look at an issue of The Progressive. Then, you decide if you'd like to **SUBSCRIBE.**



THE WHITE HOUSE TAPES, AGAIN
the Progressive
YEVTUSHENKO
FEELS A FRESH WIND BLOWING
Austin City Limits
Fugitives from Apartheid

☐ **YES,** let me decide–Send me my FREE issue and reserve a one-year subscription for only $16.97.

NAME ADDRESS

CITY STATE ZIP

GUARANTEE: If The Progressive isn't for you, return the subscription bill marked "cancel" within two weeks and that's that. You've spent nothing. You owe nothing. And the sample issue is yours to keep, FREE.

THE PROGRESSIVE P.O. Box 54615, Boulder, CO 80321-4615 57091

The Reagan revival of arms deals

The Iran-contra schemes were consistent with the policy of an administration that has dismantled controls on arms transfers, offering sophisticated weapons, on easy terms, to anyone it sees playing a role in East-West confrontation.

by William Hartung

WHILE THE TOWER Commission and other analysts of the Iran-contra scandal have stressed the affair's exceptional character, the use of arms deals to win political objectives has been a favored tactic of the Reagan administration since its earliest days. The bizarre, secretive methods used by Lt. Col. Oliver North and his associates may have been extreme, but they were fully within the spirit of administration policy on weapons transfers, which it views as a primary, multipurpose foreign policy tool.

James Buckley, then undersecretary of state for security assistance, set the tone for the administration's approach to such sales in a May 1981 speech to the Aerospace Industries Association in which he charged that "the Carter administration adopted policies toward the transfer of arms that substituted theology for a healthy sense of self-preservation." Buckley objected in particular to formal restrictions on arms sales or military aid based on human rights and nuclear nonproliferation concerns. He derided such "well-intentioned efforts" as having "little detectable impact" on the policies of the affected nations. Reagan's policy, Buckley said, would place arms transfers equal with the proposed U.S. military buildup in the administration's global policy of confrontation with the Soviets and their allies. In one of the simpler expressions of the new foreign policy vision, Buckley closed by telling the assembled industry representatives: "On the world's stage today it is possible to divide the principal actors between the good guys and the bad guys; and we might as well understand that the bad guys are serious and playing for keeps."

Buckley's policy thrust was made formal in July 1981 when a new presidential directive on conventional arms transfer policy was signed, superseding the Carter administration's P.D. 13, which had enunciated a policy of arms transfer restraint. Breaking sharply with Carter's policy, the Reagan directive stressed the benefits of arms transfers to U.S. security, describing them as "an essential element of its global defense posture and an indispensable component of its foreign policy." Each of the six major controls imposed by Carter was repealed:

- The ceiling on the volume of major U.S. arms transfers to Third World countries was eliminated.
- The pledge to refrain from being the first nation to introduce "newly developed, advanced weapons which could create a new or significantly higher combat capability into a region" was withdrawn.
- A ban on the development of weapons "solely for export" was lifted.
- Restrictions on coproduction agreements, in which a foreign nation receives the technical information and equipment to produce significant components of a U.S.-supplied weapon, were dropped.
- The so-called leprosy letter that prevented U.S. government personnel overseas from promoting arms sales without "policy level authorization by the Department of State" was rescinded.
- The commitment "to promote and advance respect for human rights in recipient countries" was no longer considered important enough in executive branch arms-export decision making to even warrant a mention in the new guidelines.[1]

Dave Shannon, © Inx, United States

IRONICALLY, THE ARMS restraint policy that the administration so roundly repudiated was itself a response to the active promotion of arms sales by the Nixon and Ford administrations. Under the rubric of the Nixon Doctrine, U.S. weapons exports under the Foreign Military Sales program jumped to a record $15.8 billion by 1975 from $1.5 billion in 1971. The political impetus for the Nixon Doc-

William Hartung, a freelance writer based in New York, most recently coauthored Star Wars: The Economic Fallout *(forthcoming) for the Council on Economic Priorities.*

trine was an effort to preserve U.S. military influence in the Third World without resorting to direct military intervention. Nixon's solution was to set up a series of surrogate gendarmes in key regions to protect U.S. interests by force, if necessary, in exchange for generous supplies of U.S. weapons, aid, and training. The 1973 OPEC oil price increase added strong economic incentives to focus on sales to oil-rich Third World regimes like Iran and Saudi Arabia, which improved the U.S. balance of payments.[2]

Congress took action against this relatively unregulated binge in weapons sales well before Carter became president. The tenfold increase in the volume of U.S. sales was cause enough for concern, but even more troubling was the growing tendency to sell top-of-the-line, sophisticated U.S. fighter planes such as the F-14 and F-15; Phoenix and Sidewinder missiles; and even Spruance-class naval destroyers to potentially unstable Third World dictators like the Shah of Iran. These concerns led to the passage in 1974 of the Nelson amendment to the Foreign Assistance Act, which for the first time gave Congress the power to veto a major arms sale proposal.

Congress passed an embargo against arms aid or sales to Turkey in 1974 and in 1975 passed the Clark amendment barring arms sales to antigovernment forces in Angola. Finally, in 1976, the Arms Export Control Act became law. Arms sales expert Michael Klare has described the act as "the first comprehensive piece of legislation to establish formal policy guidelines for the military sales program."[3] The act asserted that U.S. policy would henceforth be "to exert leadership in the world community to bring about arrangements for reducing the international trade in the implements of war," and followed up on this pledge by strengthening congressional review powers over arms deals and by setting up a schedule for phasing out the Military Assistance Program, which provides weapons and services as grants.

The Carter arms transfer policy, seen in its historical perspective, was not a naive, unilateral initiative as Reagan officials like Buckley portrayed it. Rather, it was a logical continuation of a policy Congress had embarked upon in response to the potentially dangerous impact of unregulated U.S. sales in the early 1970s. If anything, the greatest flaw in Carter's policy was the wide gap between the soaring rhetoric used to introduce it and the reality of continued massive arms transfers under his administration. A number of critical loopholes plus President Carter's de facto exemptions of key recipients like Israel and Iran allowed the United States to make $43 billion in weapons sales during the four years of the "restraint" policy, a total only marginally different from the previous four years under Nixon and Ford. Using arms transfers to promote other strategic objectives—from cementing the Egyptian-Israeli peace treaty to winning access to facilities for the newly forming Rapid Deployment Force—overrode the rhetoric and procedures of restraint.

THE REAGAN ADMINISTRATION quickly set out to prove that its rhetoric on arms transfers would match its actions. Early offers to Venezuela, Pakistan, and South Korea of advanced F-16 fighter planes abruptly broke the sophistication barrier that had been observed by the Carter administration in arms deals with most Third World nations. The Venezuelan offer reversed an established U.S. policy, dating back to the 1960s, against sales of advanced fighter planes to Latin America.[4] It also prompted an immediate formal protest from Guyana, which had a long-standing boundary dispute with Venezuela. Despite this concern and fears among some members of Congress about sparking a regional arms race, the offer went through with minimal opposition.

Early on, the administration also targeted political barriers to U.S. arms transfers. Offering F-16s to Pakistan, for example, was part of a larger, $3-billion, six-year aid package that required exempting Islamabad from the Symington amendment to the Foreign Assistance Act, which prohibits U.S. aid to countries refusing to submit their nuclear programs to International Atomic Energy Agency inspections and nonproliferation safeguards. Congress granted this request by passing an amendment that "allows the President to waive the prohibitions of section 669 [the Symington amendment] regarding assistance to Pakistan until September 30, 1987, if he determines that it is in the national interest to do so."[5] Pakistan's refusal to formally renounce the pursuit of nuclear weapons production, combined with the F-16's potential for carrying nuclear weapons, engendered heated debate. But the administration's arguments about the need to support a front-line state opposed to the Soviet invasion of Afghanistan carried the day.

Human rights barriers to U.S. arms transfers have given way more gradually. Legislative bans on military aid to Argentina and Chile were modified in 1981, at the administration's urging, allowing arms transfers to proceed if the president certified that "significant progress in complying with human rights principles" had been made. The ban on Argentina was lifted December 10, 1983, after the democratically elected government of Raúl Alfonsín came to power. Continued repression by Augusto Pinochet's regime, coupled with more detailed conditions set on the certification process, has so far prevented resumed arms transfers to Chile.

In Central America, in fiscal year 1986, Guatemala received its first installment of direct U.S. military assistance since the late 1970s. Congress has limited assistance to Guatemala to "nonlethal" equipment such as trucks, communications equipment, and spare parts for transport helicopters, in recognition of the fact that Guatemala's nominally democratic government is still dominated by repressive military and security forces having a history of gross human rights violations. While the levels of assistance have been modest, running at roughly $2.5 million per year in fiscal years 1986 and 1987, the State Department and the Pentagon have made it clear that the purpose of the aid is to help Guatemala's military wage war against leftist guerrilla forces.[6]

Human rights certification procedures governing military assistance to El Salvador, instituted early in Reagan's first term when U.S. support for the Salvadoran counterinsurgency war was accelerating, have been "softened" in recent years, according to a November 1986 Congressional Research Service analysis. Conditions on U.S. aid have been reduced to "expectations" in the authorizing legislation requiring President Reagan to report on the extent to which the regime of José Napoleon Duarte controls human rights abuses by its security forces, eliminates right-wing death squads, establishes an effective judicial system, implements land reform, and negotiates with guerrilla forces. But the overriding reality under both the stronger certification procedures of the early 1980s and the softer ones now in effect has been the dramatic growth in U.S. arms transfers to El Salvador, which totaled nearly $600 million between 1981 and 1986.

In South Africa, without openly pressing for changes in U.S. law, the administration has been violating both the spirit and the letter of the longstanding international arms embargo against the apartheid government. The most obvious shift in U.S. enforcement of the embargo has been the administration's decision to allow certain items on the U.S. munitions list to be shipped to South Africa—more than $19 million in U.S. arms and arms components have been supplied since 1981 through this loophole alone. These weapons, supplied to South African corporations or government agencies, include light aircraft, electronic switches for tanks, night-vision scopes for semi-automatic shotguns, shock batons for "crowd control," and spare parts for South African military transport planes.[7] And U.S. supplies of sophisticated dual-use items, including advanced computers, to state-owned agencies such as the South African Council for Scientific and Industrial Research and the Atlas Aircraft Corporation, have even greater potential value for South Africa, which has been developing its own arms industry.[8]

Furthermore, the way in which the Reagan administration recast the terms of debate over arms sales and military aid is at least as significant as its concrete proposals on arms transfers and its implementation of arms export regulations. The F-16 sale to Venezuela was put forth as a response to the "Cuban threat" in the Caribbean and Central America, and much was made of the potential dangers to Venezuela of the international airport in Grenada that Cuban personnel were helping to build.[9] Before this, in one of its first official actions, the Reagan State Department released a "white paper" alleging that Cuba and Nicaragua supplied "nearly 200 tons of arms" to Salvadoran guerrilla forces before their "general offensive" in January 1981. These allegations were instrumental in securing $20 million in emergency military aid for El Salvador in February 1981.

IN JULY 1981 Undersecretary of State Buckley upped the ante when he told Congress: "In areas of the developing world of special importance to the West . . . over the past four years, Soviet transfers of some of the most sophisticated weapons have surpassed those of the West by impressive margins." These efforts to foster the image of an urgent East-West arms-transfer race accelerated in August 1982 when the State Department released *Conventional Arms Transfers in the Third World, 1972–1981*, a study aimed at changing the "popular misconception" that the United States is "the leading supplier of weaponry to the Third World that many people think it is."

Reagan's easy credit terms

U.S. military assistance—loans and grants to buy weapons and military services—has grown substantially during the Reagan era, more than doubling in his first term alone. Perhaps even more significant for the longer term has been the shift away from using loans that had to be repaid at standard Treasury interest rates toward outright grants or heavily subsidized loans. Grants under the Military Assistance Program have increased sevenfold since 1981, and Foreign Military Sales (FMS) "loans to be forgiven," which are aid by another name, have increased almost sixfold. After being rebuffed by Congress in 1982 and 1983, the administration finally won approval for a program of concessional FMS credits in the fiscal year 1985 budget. These loans may be granted at interest rates as low as 5 percent. Finally, the number of countries eligible for "extended" repayment on FMS credits, including a ten-year grace period and 20 years to repay, has been expanded. The net result of these changes is that the percentage of U.S. military assistance disbursed in the form of grants or subsidized loans had grown by 1986 to more than 75 percent of the total, from less than 20 percent in 1981.

More objective analyses of trends in Soviet arms transfers indicate that they are neither as massive nor as influential as administration officials have asserted. Although data on major weapons transfers compiled by the Stockholm International Peace Research Institute indicate that Soviet arms transfers to the Third World have been increasing relative to most other suppliers during the 1980s, they also demonstrate that sales to the Third World by the United States and its European allies still outstrip, by a nearly two-to-one margin, those of the Soviet Union and its Warsaw Pact allies.[10] Furthermore, when the sophistication of U.S.-supplied weapons is considered, there is no indication that U.S. allies are at a disadvantage to Soviet-supplied adversaries, as evidenced by Israel's continued military superiority in the Middle East. Finally, the collapse of Soviet relations with and influence over nations like Egypt, China, and Somalia, which had been its primary arms clients, calls into question how much political leverage Soviet arms transfers have actually generated.

The fact that many of the administration's assertions about trends in arms transfers to Central America and the Third World turned out to be fabrications, exaggerations, or oversimplifications did not keep these transfers from being put on a par with the U.S. military buildup in debates on how best to counter the "Soviet threat." This, in turn, put congressional critics of particular sales on the defensive and helped win approval for major increases in security-assistance funding during Reagan's first term.

The president's pledge to arm and train anticommunist "rebels" around the globe—from the contras in Nicaragua, to Jonas Savimbi's South African–backed UNITA forces in Angola, to the Cambodian and Afghani rebels—was the culmination of this emphasis on arms transfers as the key tool of Reagan's foreign policy. This commitment is the main element in the so-called Reagan Doctrine, and has been backed by more than $1.5 billion worth of U.S. military aid during the past six years.

The type of weaponry supplied to these "rebel" movements has been almost as controversial as such larger issues as human rights abuses by the contras and the question of whether these far-flung commitments might lead to direct U.S. military intervention. Both the Afghani rebels and UNITA forces have reportedly received Stinger missiles, a shoulder-fired anti-aircraft weapon with a range of more than three miles. Senator Dennis DeConcini, Democrat of Arizona, has called the Stinger "the ultimate terrorist weapon." Despite this concern, Senator DeConcini's amendment requiring U.S.-backed rebels receiving Stingers to follow the same guidelines for storing and transporting them as those imposed on other U.S. allies lost by a two-to-one margin—a measure of the ability of the Reagan Doctrine to override other considerations. In a February leak to the *Washington Post*, the administration indicated its intent to supply more Stinger missile launchers to the Afghani rebels beyond the 150 already provided.

To make way for this policy the administration won repeal in 1985 of the Clark amendment against aid to antigovernment forces in Angola and in 1986 of the Boland amendment that prohibited military assistance to the contras. Revelations in the Iran-contra scandal show that the CIA and key Reagan aides jumped the gun by supplying weapons and logistical support to the contras and probably to Savimbi's forces before Congress lifted the prohibitions on these activities.

Trends in U.S. military assistance, 1981 to 1986

($ millions)

Program	*1981*	*1982*	*1983*	*1984*	*1985*	*1986*
MAP	110	171	383	711	805	748
FMS credit, forgiven	500	800	1,175	1,315	2,575	2,966
FMS credit, concessional	—	—	—	—	654	878
FMS credit, Treasury rate	2,546	3,084	3,932	4,402	1,711	1,380
Total Military assistance	3,156	4,055	5,490	6,428	5,745	5,972
Grants and subsidized loans as a percent of total military assistance	19.3%	23.9%	28.4%	31.5%	70.2%	76.9%

—Department of State, *Congressional Presentation Document for Security Assistance Programs, F.Y. 1987,* Volume I; and Department of Defense, Defense Security Assistance Agency, *Foreign Military Sales and Military Assistance Facts as of September 30, 1986.* Figures for total military assistance include the MAP and FMS credit programs but exclude smaller military aid programs such as the International Military Education and Training program (IMET).

On top of these largely successful efforts to remove political barriers on transferring sophisticated weapons to almost any nation or movement that the administration sees as playing a role in East-West confrontation, the administration also created a new institutional framework to facilitate arms exports. The most dramatic step has been the establishment of the Special Defense Acquisition Fund (SDAF), started in 1982 to stockpile commonly requested U.S. weapons in anticipation of foreign demand. Originally intended as a revolving fund that would be replenished through fees on Foreign Military Sales program deals, the SDAF so far has required yearly appropriations of $325–$350 million to sustain it. To date 25 nations have received expedited deliveries of U.S. rifles, ammunition, howitzers, helicopters, tanks, and other weaponry from the SDAF stockpiles.[11] Not only can customers for U.S. weapons expect faster delivery under SDAF, but they can usually count on receiving them on considerably better financial terms.

These changes in policy and financing propelled U.S. arms transfers to record levels. In fiscal year 1982, the first full year the new Reagan policy was in effect, orders for U.S. weapons and military construction topped $22 billion, the highest ever. Sales were almost as brisk in fiscal year 1983, exceeding $20 billion. Total U.S. arms transfers during Reagan's first term, adjusted for inflation, topped those of the Carter years by roughly $2 billion per year, an increase of more than 12 percent annually.

ECONOMIC AND POLITICAL obstacles have slowed the rate of foreign orders for U.S. weapons substantially in Reagan's second term. Declining oil revenues and the continuing debt problems of major Third World arms customers curbed demand in what had been in the 1970s the fastest growing part of the arms market. Congressional attempts to contain the budget deficit and meet spending targets set by the Gramm-Rudman-Hollings bill led to a decrease in funds allotted to military assistance in fiscal year 1985, the first after four years of substantial increases. The easier credit offered to make U.S. weapons more available has not fully counterbalanced the decreased resources of Third World customers.

Opposition from Congress has significantly affected the level of U.S. sales in the last few years as well. In 1985 the administration opted not to follow through on a Saudi request to buy 48 F-15s, fearing a protracted battle in Congress. The Saudis proceeded to make a $6 billion deal with Britain for 72 Tornado fighters and 60 training aircraft, but not before receiving the approval and blessing of the Reagan administration. An offer in fiscal 1986 of nearly $1.9 billion worth of arms to Jordan—including 40 fighter planes, 300 Sidewinder air-to-air missiles, and 12 mobile Improved Hawk surface-to-air missile systems with 222 missiles—was postponed indefinitely after Congress voted to block the sale unless Israel and Jordan begin direct peace talks.

Channels for arms transfers

U.S. weapons may be legally transferred to a foreign nation or organization through three major channels, each with its own regulatory procedures:

- *The Military Assistance Program (MAP)* provides military equipment and services as grants. Once the largest channel for transferring U.S. weapons overseas, MAP has played a subsidiary role to the much larger Foreign Military Sales program since the mid-1970s. Since 1982 MAP has mostly funded weapons purchases under the FMS program.
- *The Foreign Military Sales (FMS)* program is a government-to-government program managed by the U.S. Defense Department. FMS program sales, which account for 80 percent or more of total U.S. weapons transfers in a given year, generally involve major defense equipment such as combat aircraft and helicopters, tanks, armored personnel carriers, and advanced missiles of all types. A foreign country may pay for its FMS purchases with cash, grant aid, or FMS credits authorized by the U.S. government. The Pentagon usually contracts with private U.S. firms for the equipment transferred under the FMS program, but it may also manufacture it in government arsenals, take it from military stocks, or even take it from active U.S. military units in certain circumstances.
- *The Commercial Sales* program covers direct sales of significant military equipment and services from U.S. arms manufacturers and private weapons dealers to foreign governments or organizations. Firms seeking to make commercial arms sales must get a license from the State Department's Office of Munitions Control. Commercial sales generally involve rifles, light aircraft, transport planes, ammunition, and other less sophisticated weaponry, although for some countries and in some cases more advanced weapons can also be sold through this channel.

Congress authorizes MAP grants and FMS credits annually and thus has the power to cut assistance to a given nation, as well as the ability to prohibit military aid or sales to specific countries.

FMS sales offers, Commercial Sales export licenses for major defense equipment worth $14 million or more, or licenses for any military equipment or services worth $50 million or more require 30-day advance notification to Congress. A proposed sale may be blocked within that period through a congressional joint resolution. So far Congress has never voted down a sale, but its power to do so has forced the executive branch to scale down or withdraw a number of significant arms sales offers.

—Congressional Research Service, *U.S. Military Sales and Assistance Programs: Laws, Regulations, and Procedures* (Washington, D.C.: U.S. Government Printing Office, 1985).

The depth of congressional opposition to unrestrained U.S. sales to Middle Eastern and Persian Gulf nations other than Israel and Egypt is indicated by the fact that Congress successfully turned back these deals without what had been its strongest weapon—the legislative veto by concurrent resolution. (Vetos of this type were ruled unconstitutional in the 1983 Supreme Court decision in *INS versus Chadha.*) Since concurrent resolutions do not require a presidential signature, a simple majority of both houses had been sufficient to block a major arms sale under veto provisions in force until 1983. The new mechanism of congressional disapproval, the joint resolution, requires a presidential signature and can be vetoed.

The first direct test of this new mechanism was a controversial offer in May 1986 of $354 million worth of advanced missiles to Saudi Arabia. After the administration removed 800 Stinger missiles from the package in deference to congressional opposition, the offer was *still* voted down by both houses. President Reagan's veto of the joint resolution was sustained by one vote, however, when 34 senators voted to support his position.

Just as Congress began restraining sales of sophisticated weapons to the Middle East and military aid to Central America, administration officials were constructing a network of secret bank accounts and dummy corporations to evade legal restrictions on U.S. arms transfers to the contras and Iran. By constructing a separate channel through which such transfers could be conducted, the administration made a mockery of the notion of congressional consultations on arms sales and covert military operations. The resulting fiasco has called into question the basic premises of its arms-sales and military-assistance policies and has permanently undermined administration credibility.

While the covert Iran-contra scheme was operating, new aboveboard arms deals were proposed in 1986. In all, 55 major offers, ranging in size from $20 million to $1.1 billion, were proposed for congressional review. Two were withdrawn or postponed because of congressional opposition. Despite significant reductions in the overall level of U.S. arms sales, from the record levels of 1982 and 1983 to $15 billion in 1985 and less than $10 billion in 1986, the scope of these weapons offers remains substantial.

ASIDE FROM THE ONGOING issues of introducing sophisticated arms to the Middle East and extending military aid to the contras, two critical arms supply relationships are likely to be the focus of continued debate and controversy: the rapidly accelerating sale of weapons and arms production technology to China and the proposed renewal of a waiver on nuclear-proliferation-related sanctions covering aid to Pakistan.

The arms supply relationship with China has drawn criticism from conservatives like former Senator Barry Goldwater of Arizona, who have never accepted U.S. détente with China, as well as from liberals like Senator William Proxmire of Wisconsin who question whether arms sales should be the crux of U.S.-Chinese relations. Discussions of possible arms sales to China have occurred annually since the late 1970s but took the form of concrete offers only in the mid-1980s. Commercial sales of U.S. arms to China jumped from a token $1 million in 1982 to nearly $23 million in 1984. More important, two weapons technology deals were concluded under the Foreign Military Sales program in 1985 and 1986. The first involved $98 million worth of equipment and technical data for modernizing Chinese factories that produce howitzer shells and other ammunition. This was followed by an offer of $550 million worth of equipment and technical assistance for updating the electronic capabilities of China's F-8 interceptor aircraft.

Beijing's extensive arms shipments to Iran and its role in assisting Pakistan's nuclear weapons development efforts have sparked congressional criticism of expanding military cooperation with a nation viewed as an unreliable partner. Goldwater's and other conservatives' concerns that the United States is abandoning Taiwan seem less plausible in light of the $3.5 billion worth of U.S. arms that have been transferred to that nation since 1981. Even so, the next major proposed sale to China could be challenged by a formidable conservative-liberal coalition.

Unquestionably the most critical security issue facing Congress in the arms transfer area this year, with implications for years to come, is the debate over extending the waiver of Symington amendment restrictions on aid to Pakistan. Despite administration assurances that Islamabad had pledged not to develop nuclear weapons when the first six-year waiver was passed in 1981, President Mohammad Zia ul-Haq recently boasted that Pakistan could build the bomb whenever it wished.

Major U.S. arms sales offers, fiscal year 1986

Country	*Weapons/services offered*	*Value ($millions)*
Jordan	40 F-16 fighter aircraft, 300 Sidewinder air-to-air missiles, 222 I-Hawk air-defense missiles, 72 Stinger missile systems with reloads, 32 Bradley Fighting Vehicles, related equipment	$1,885[a]
People's Republic of China	55 integrated avionics system kits; support, training, installation for modernizing 50 F-8 interceptor aircraft	$ 550
Saudi Arabia	Contractor technical services, maintenance and training in support of U.S.-supplied F-15 aircraft	$ 500
Indonesia	8 F-16 aircraft with Sidewinder missiles, other munitions and support equipment	$ 432
Saudi Arabia	1,666 Sidewinder missiles, 200 Stinger missiles with 600 spare missiles, 100 Harpoon missiles	$ 354[b]
Portugal	Three sets Harpoon missile launcher equipment, three NATO Sea-Sparrow missile systems, three Phalanx close-in weapons systems, 72 MK 46 torpedoes, other electronic and support equipment for Portuguese naval frigate program	$ 216
Saudi Arabia	2,263 military trucks, 1,389 trailers, 129 ambulances, support, spares	$ 202
Netherlands	Multiple Launch Rocket system	$ 192
Korea	50 UH-1H helicopters, engines, spares	$ 155

[a] The Jordan offer was withdrawn due to congressional opposition.
[b] The Stinger missile part of the Saudi offer was withdrawn.

Pakistan could stockpile the basic parts and materials for up to 20 nuclear weapons during the course of the six years of the new proposed waiver, according to estimates by nuclear-proliferation analyst Leonard Spector. The waiver would clear the way for a six-year, $4.2 billion military and economic aid package that probably will involve sales of F-16s and Airborne Warning and Control Systems aircraft to Pakistan. Administration officials are arguing once again that Pakistan deserves the waiver in exchange for its role in offering support and sanctuary to the Afghan rebels. If administration arguments prevail, the goal of stopping nuclear weapons proliferation may become the latest casualty of the Reagan Doctrine.

It remains to be seen whether the administration will moderate the use of arms sales in its foreign policy or if Congress will move decisively to strengthen its role in controlling U.S. weapons transfers to foreign governments and organizations. A proposal by Representative Mel Levine, Democrat of California, Senator Joseph Biden, Democrat of Delaware, and the new Senate Foreign Relations Committee chairman, Democrat Claiborne Pell of Rhode Island, requiring congressional approval of all major arms sales, has gained impetus in the wake of the Iran-contra scandal. But signs of a change on the administration's part are less promising. The Reagan team, in what the *New York Times* described on February 13 as "an effort to repair the damage done to its reputation in the Arab world by the Iran affair," has rushed to propose a series of new arms deals with Saudi Arabia, Egypt, and Bahrain, including offers of F-16 fighter planes and missile-carrying helicopters. ☐

---

1. Office of the White House Press Secretary, *Statement by the President on Conventional Arms Transfer Policy* (Washington, D.C.: May 9, 1981).
2. Michael Klare, *The American Arms Supermarket* (Austin, Tex.: University of Texas Press, 1984), p. 112–21.
3. Ibid., p. 41.
4. Ibid., pp. 77–79; U.S. Congress, House Committee on Foreign Affairs, *Changing Perspectives on U.S. Arms Transfers*, prepared by the Congressional Research Service (Washington, D.C.: Sept. 25, 1981), pp. 56–66.
5. U.S. Congress, House Committee on Foreign Affairs, *U.S. Military Sales and Assistance Programs: Laws, Regulations, and Procedures*, prepared by the Congressional Research Service (Washington, D.C.: July 23, 1985), p. 74.
6. U.S. Department of State, *Congressional Presentation for Security Assistance Programs, Fiscal Year 1987*, vol. II (Washington, D.C.: U.S. Government Printing Office, 1987), pp. 56–57; Holly Burkhalter, personal communication, May 5, 1987.
7. United Nations Special Committee against Apartheid and World Campaign against Military and Nuclear Collaboration with South Africa, American Committee on Africa and Washington Office on Africa, *The UN Embargo and the USA: Cases and Issues* (Oslo, Norway: World Campaign against Military and Nuclear Collaboration with South Africa, May 1986).
8. Thomas Conrad, "South Africa Circumvents Embargo," *Bulletin* (March 1986), pp. 8–13.
9. James L. Buckley, "Proposed Sale of Aircraft to Venezuela," *Current Policy*, no. 369 (Washington, D.C.: Department of State, 1982).
10. Stockholm International Peace Research Institute, *World Armaments and Disarmament: SIPRI Yearbook 1986* (New York: Oxford University Press, 1986), p. 325.
11. U.S. Department of State, *Congressional Presentation for Security Assistance Programs, Fiscal Year 1987*, vol. I (Washington, D.C.: U.S. Government Printing Office, 1987), pp. 108–10.

Nuclear power's burdened future

Although governments of the world's leading nations are reiterating their faith in nuclear power, Chernobyl has brought into focus the public's overwhelming feeling that the current generation of nuclear technology is simply not working.

by Christopher Flavin

The Faustian bargain of nuclear energy has been lost. It is high time to leave the path pursued in the use of nuclear energy in the past, to develop new alternative and clean sources of energy supply and, during the transition period, devote all efforts to ensure maximum safety. This is the price to pay to enable life to continue on this planet.

THESE ARE NOT the words of an antinuclear activist but of Peter Jankowitsch, Austria's foreign minister. They were spoken not in the heat of an election campaign but before the assembled world nuclear establishment at a historic meeting of the International Atomic Energy Agency (IAEA), five months after Chernobyl. The leaders were shocked. Never before had an important member country, in this case the host of the IAEA, made such an announcement. The words are those of a politician, but they reflect a disillusionment, now widespread in Europe, with the way the nuclear enterprise has turned out.

Chernobyl has brought into sharp focus the tightening web of problems that has halted or crippled one nuclear program after another: safety, economics, waste disposal, security, and simple human blundering. The accident on April 26, 1986, may have marked the final breach of trust between nuclear leaders and their increasingly skeptical constituents. The radiologic fallout from Chernobyl was severe, but the political fallout is probably more momentous. A global march away from nuclear power may be underway.

Even before Chernobyl, nuclear power was not a healthy industry. It has long been plagued by shoddy construction practices, billion-dollar cost overruns, disinformation campaigns by government officials, thousands of tons of accumulating nuclear waste, and frequent malfunctions. Chernobyl can be compared with a heart attack that struck a patient already afflicted with cancer. And in the aftermath of Chernobyl, a growing number of political leaders appear inclined to disconnect the government-funded life-support systems that have kept the industry going so far.

The experience of nuclear planners during the past decade can be summed up in one phrase: lowered expectations. In the early 1970s, when nuclear programs were being started, many governments had lavish ambitions. In its 1974 annual report, the IAEA added up various national plans and projected that 4.45 million megawatts of nuclear power would be in place by the year 2000—more than 17 times the current nuclear capacity.

Today, the IAEA projects that the world will have just 372,000 megawatts of nuclear power in 1990 and 505,000 megawatts in the year 2000—compared with nearly 256,000 megawatts in 1986. This is almost 90 percent below the agency's 1974 projection, and a 45 percent decline from the 1980 forecast. Yet even the recent projection is more hope than forecast. Worldwatch Institute now estimates that there will be 325,000 megawatts of nuclear capacity by 1990 and 380,000 megawatts by the end of the century.[1]

Even the supposedly successful French and Japanese nuclear programs are healthy only by the diminished standards by which such programs are now measured. Perhaps never before has an enterprise of such magnitude suffered so sudden a turn of fortune. Even optimists now recognize that the global nuclear endeavor is in deep trouble.

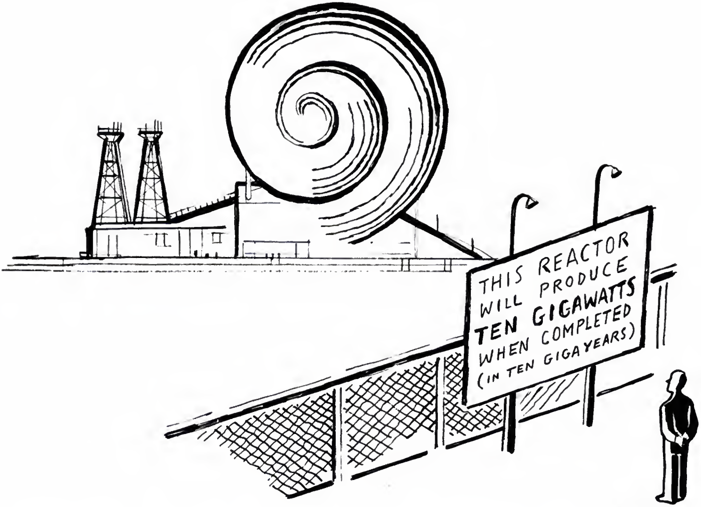
Despite the drastic slowdowns, however, the global nuclear enterprise is large. As of mid-1986, the world had 366 nuclear power plants in operation, with a generating capacity of 255,670 megawatts. These facilities generate about 15 percent of the world's electricity, ranging from 65 percent in France to 31 percent in West Germany, 23 percent in Japan, 16 percent in the United States, 10 percent in the Soviet Union, and none in most developing nations. Nuclear development is clearly dominated by the most economically powerful and technologically advanced nations. The United States, France, the Soviet Union, Japan, and West Germany have 72 percent of the world's generating capacity and set the international nuclear pace.[2]

The reasons for scaling back nuclear programs are almost as diverse as the countries themselves. High costs, slowing electricity demand growth, technical problems, mismanagement, and political opposition have all had an effect. Yet these various factors actually form a complex web of interrelated problems. For example, rising costs usually represent some combination of technical problems and mismanagement, and political opposition often occurs because of safety concerns or rising costs.

THE UNITED STATES led the world into the nuclear age and now appears to be leading it out. The last year a U.S. nuclear plant was ordered and not subsequently canceled was 1974. Meanwhile, orders for 108 reactors have been withdrawn, representing a capacity comparable to all U.S. plants now in operation and under construction. Yet

---

Christopher Flavin is a senior researcher at the Worldwatch Institute in Washington, D.C. An expanded version of this article appeared as Worldwatch Paper 75, Reassessing Nuclear Power: The Fallout from Chernobyl *(1987).*


THIS REACTOR WILL PRODUCE TEN GIGAWATTS WHEN COMPLETED (IN TEN GIGA YEARS)

David Suter, United States

U.S. nuclear capacity continues to rise as projects started in the early 1970s finally enter operation. In 1985 and 1986, 14 plants were completed and another 19 are scheduled for completion in the next three years. After 1989, however, only three more nuclear plants are scheduled and these are all in jeopardy. U.S. nuclear capacity is likely to peak between 1990 and 1992 and will then slowly decline as aging plants are decommissioned.[3]

The impending collapse of the U.S. nuclear construction business is driven primarily by economic forces. The rate of growth in U.S. electricity consumption has fallen from 7 percent per year in the early 1970s to 1.8 percent since 1980. While this led to a general scaling back of construction, most utility companies cut their nuclear projects first and most heavily, sometimes after spending billions on construction.

Orders and cancellations for coal plants have about balanced since 1980, while 55 nuclear projects were canceled and none ordered. The main reason for this discrepancy is cost. U.S. nuclear plants that cost less than $200 per kilowatt of generating capacity in the early 1970s carried price tags of $750 per kilowatt in 1980, $1,900 per kilowatt in 1984, and over $3,500 per kilowatt for the 14 reactors scheduled for 1987. These figures are not adjusted for inflation and so somewhat exaggerate the cost increases; but even after adjustment, they indicate a greater than sixfold increase over that period. [See figure, page 28.] Industry figures show that the cost of electricity from new nuclear plants (including fuel and operating expenses) now averages at least 12 cents per kilowatt-hour, while new coal plants produce at about six cents per kilowatt-hour, and gas-fired cogeneration plants at even less.[4]

The U.S. utility industry, which in the early years was able to sweep these costs under its huge financial rug, finally has been overwhelmed by them. The industry is largely made up of private companies that must answer to investors as well as to state regulators. For many, the cost overruns were sufficient to raise prices and damage their financial condition. James Cook wrote in a February 11, 1985, article in *Forbes* magazine:

> The failure of the U.S. nuclear power program ranks as the largest managerial disaster in business history, a disaster on a monumental scale. . . . It is a defeat for the U.S. consumer and for the competitiveness of U.S. industry, for the utilities that undertook the program and for the private enterprise system that made it possible. Without even recognizing the risks, the U.S. electric power industry undertook a commitment bigger than the space program or the Vietnam War.

The late 1980s may be the last gasp for the U.S. nuclear construction industry. Most of the 16 plants scheduled to begin operation during the next two years are, unfortunately, economic boondoggles that should have been canceled years ago. They are subject to extensive regulatory hearings that will determine how many of their cost overruns are the fault of the utility companies and so should be shouldered by them rather than by consumers. These last few plants will push some utilities to the edge of bankruptcy and leave their customers with high bills and bitter memories.[5]

Cost increases have plagued nearly all the world's nuclear programs, but the increases have not been as large in most countries as in the United States. Typically, new European and Japanese nuclear plants are built for the equivalent of between $1,500 and $2,000 per kilowatt, although some in France are less expensive and some in Great Britain and West Germany cost far more. The cost of coal is higher in Europe and Japan, making it easier to justify expensive nuclear plants. Nonetheless, a late 1986 West German government study found that nuclear power's economic advantages have been substantially eroded, leaving it with almost no advantage over coal-fired plants, the direct competition.[6]

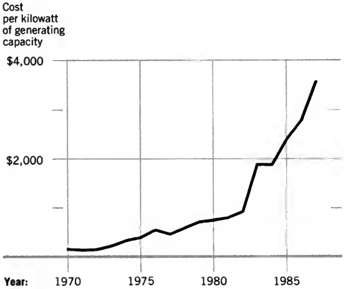
International cost variations stem from differences in management practices and regulatory processes. Many U.S. nuclear projects are badly mismanaged, and regulation is less consistent than in other nations. Countries such as France, which have pursued standardization, have been better able to control costs. But the distinguishing characteristic of the U.S. system is its dominance by private utilities. Elsewhere, public authorities are able to quietly pass on the financial burden of nuclear power to the public at large. In the United States, nuclear power has failed a market test that it does not have to meet elsewhere.

CURIOUSLY, IN OTHER nations nuclear power is failing a political test instead—a test that Chernobyl has made more difficult. Virtually all of the world's nuclear power programs have suffered serious setbacks in recent years.[7]

Nuclear trends in West Germany are influenced more overtly by political developments than in perhaps any other country. Since the mid-1970s that country's nuclear projects have frequently been the scene of large and sometimes violent demonstrations. West Germany's political system is relatively decentralized, with state and local governments extensively involved in the nuclear licensing process. Several projects have been stopped through a combination of public protests and legal interventions. West Germany has, in fact, started only two nuclear plants in the past decade, and the seven still to be completed include some seriously troubled projects. The West German government is considering a reprocessing plant, a fast-breeder reactor, and a high-level-waste disposal site, each of which has been subject to extensive legal actions and demonstrations.

Even before Chernobyl, there was little likelihood that West German utilities would order additional nuclear plants. Now, however, the debate is over when to shut down the country's existing plants. The ruling Christian Democratic party wants to wait until the end of the plants' useful lives; the Social Democratic party has called for a phaseout in 10 years; and the Green party, which made major gains in the 1987 parliamentary elections, wants to finish the job in two. Studies have shown that even a two-year phaseout is feasible, although electricity prices would increase slightly, as would air pollution. The future of the country's nuclear program depends on political developments, but it is almost certain that there will be no nuclear expansion during the 1990s, and there may well be a significant decline.

Average cost of new U.S. nuclear power plant



France's nuclear program is almost unique in having met its goals of the early 1970s. The nation already gets two-thirds of its electricity from nuclear power and in 1987 has more nuclear capacity than the next three largest European nuclear programs combined. Like much of the French system, the nuclear program is highly centralized and run by state-owned companies. Reactors are built in just six years, and neither local governments nor citizen groups have much opportunity to impede projects. Socialist President François Mitterrand came to power in 1981 promising a reevaluation of the nuclear program, but soon decided to leave it untouched. Since then, the nuclear program has been nearly immune from serious political criticism. Still, the French nuclear program faces a self-inflicted crisis: the overarching commitment to nuclear power has led the state utility, Electricité de France (EDF), to order more plants than the country needs or can afford. EDF now has a debt of $32 billion, exceeding that of most developing countries. The president of EDF admitted in 1986 that the country will have two to four "extra" reactors by 1990, and a French labor union has estimated overcapacity in 1990 at 19,000 megawatts—the output of all 16 nuclear plants ordered since 1979.

To justify its nuclear investment, EDF has shut down relatively new oil- and coal-fired power plants. It also promotes electricity consumption through bargain prices, markets power to neighboring countries, and still will have to run most nuclear plants at less than half their capacity. Even in nuclear France, however, new plant orders have slowed from six a year in the late 1970s to one a year today. The French nuclear program may turn out to be a costly relative of the Concorde supersonic jet—a technological marvel but a financial albatross.

Europe's smaller nuclear programs are also in serious disarray. Italy has faced a combination of technical problems and political opposition that for almost a decade has prevented its nuclear program from getting off the ground. A national referendum on nuclear power is now planned in Italy, and based on popular opinion so far it may well call for the end of the country's nuclear expansion program. The Spanish government canceled three nuclear plants and mothballed two others in 1983, representing a lost investment of $8 billion. Two more are being finished, but heavy reliance on nuclear power is no longer favored by the people or the government of Spain.

British nuclear expansion has slowed drastically since the late 1970s, and the country has spent five years deciding whether to abandon domestic reactors in favor of an American design. Although the official report of the lengthy Sizewell inquiry, released in early 1987, favors further nuclear expansion, as does the Conservative government, overwhelming opposition from other political parties and the public may yet stop such expansion. Meanwhile, some of the country's early reactors will probably have to be decommissioned during the 1990s. In the Netherlands, there are only two small nuclear plants in operation, and after Chernobyl the government indefinitely postponed plans to build two more.

Belgium has seven plants supplying about half the country's power, and there is not a vigorous national debate over whether to build more. Switzerland has five plants in operation, but no more are being built. Two public referenda on stopping nuclear expansion were narrowly defeated in 1980 and 1984. A third is now likely, and recent polls show that the public today is strongly against more plants.

In Finland, four reactors are operating, but no more are under construction. Since Chernobyl, opposition has become heated, and the government has suspended plans for an additional plant. In Sweden, Chernobyl increased public pressure on the Social Democratic government to fulfill the national policy, established by referendum in 1980, of phasing out all of the country's nuclear plants by the year 2010. In late 1986, a government commission determined that the phaseout could be advanced to 1997 and sharp electricity price increases avoided if the development of energy alternatives were accelerated.

Japan's nuclear power program has moved forward slowly but more steadily than most. Beyond the 33 plants that now supply 23 percent of the country's electricity, 11 are under construction. In 1984, Japan lowered the forecast for its nuclear capacity in the year 2000 by 31 percent. Japanese utilities are now ordering just two reactors per year, a rate more likely to fall than to increase. Public concern over nuclear safety was heightened by Chernobyl, but it has not translated into any effective move to stop nuclear power.

THE NUCLEAR PROGRAM that is hardest to judge is the one most directly affected by the Chernobyl accident. Before Chernobyl, the Soviet Union and its East European allies had just released their latest nuclear expansion plans, which showed the Soviet Union building two-thirds of the nuclear capacity planned worldwide between 1990 and 1995 and boosting its own nuclear output by 300 percent during the next eight years.[8] On April 25 the Soviets announced that they were canceling construction of two reactors scheduled for addition to the Chernobyl station. At the same time, they said 11 power stations were under construction elsewhere, more were planned, and that nuclear power output would reach twice the 1985 levels by 1990.

Despite these bullish projections, the Soviet nuclear program has been beset by problems that predate Chernobyl. Numerous reports have appeared of construction mishaps and delays, most serious of which are problems at the Atommash nuclear manufacturing facility in the Ukraine, designed to build equipment for all the Eastern bloc's light-water reactors. Reconstruction was required after wet ground caused the partly built plant to begin to collapse. It was completed five years late and is still not producing at the planned capacity. These and other problems have caused the Soviet Union to fall short of most of its nuclear goals by amounts that are large even by the standards of overly ambitious Soviet five-year plans.[9]

The chairman of the Soviet State Committee on the Utilization of Atomic Energy told the IAEA September conference that the Chernobyl accident "will have no effect . . . on the further development of nuclear power generating capacity in the U.S.S.R." The restart of Chernobyl's adjacent reactors and the quick retrofits of others signal a commitment to get the nuclear program back on track, but to do this, the government has been forced to spend unprecedented resources on its nuclear program. International prestige is at stake, and Soviet officials appear to believe that they have no other way to avoid power shortages.[10]

The Soviet Union does not change directions quickly. Reaffirmation of its nuclear goals was predictable, but there are reasons for thinking that Chernobyl will cause a reassessment. None of the seven nuclear plants scheduled to begin operation in 1986 actually did. In addition, the Soviet public is now concerned about nuclear health and safety issues, and the recent tolerance of political dissent means that these concerns may be heard. Now that the nuclear program is receiving the attention of top Kremlin officials, the extent of the problems facing it may become more apparent, and hardnosed economic judgments could replace the unrealistic goals that have driven the program so far. The Soviet Union has never been a technological leader, and the slowdown in Western nuclear programs is likely to provoke further doubts.

Before Chernobyl, a Soviet-sponsored nuclear construction program was being geared up in Eastern Europe, with no perceptible political opposition. Although East European states currently have only a few nuclear plants, a shortage of domestic energy sources and serious air pollution problems had stirred interest in nuclear power. But Chernobyl aroused considerable opposition to nuclear power in that area, and in some countries the opposition has become vocal.

Protests in several Yugoslavian republics led the government to put plans for up to eight plants on hold while a full review of the country's energy plans is carried out. Poland's latest five-year plan includes a 50 percent cut in the nuclear budget, signaling a major delay in completing that country's first four nuclear plants. East Germany and Czechoslovakia have so far indicated no change in their sizable nuclear programs. At the 1986 meeting of COMECON (the Council for Mutual Economic Assistance), six months after Chernobyl, several speeches were made in support of nuclear power, but no formal numerical commitments were issued.

Nuclear power plants in the Third World have been cut back even more drastically than in industrial countries. Most began in the 1970s, with the encouragement of foreign donors, but in recent years many of these projects have been plagued by technical problems, delays, and staggering cost overruns. Mexico's plans to build up to 20 nuclear plants have virtually collapsed. Argentina and Brazil are struggling to complete much-delayed and over-budget projects begun in the 1970s and have put further plans on hold. Brazil's sole operating plant, near Rio de Janeiro, was shut down by court order following Chernobyl and work has almost stopped at the two plants being built.[11] The government of India has invested enormous prestige and capital in a nuclear program that is now hobbled by major technical problems and escalating costs.

South Korea and Taiwan are the only developing countries likely to get more than 10 percent of their electricity from nuclear power by the year 2000, and South Korea alone appears to be planning significant additional expansion.[12] Once the great prospect for nuclear companies looking for export markets, China announced in March 1986 that its current plan was to build just two plants. It appears to have postponed its more ambitious earlier plans in order to avoid incurring the large debts that have accompanied nuclear programs in Brazil and the Philippines. Nuclear power may never have been economically sound for most developing nations; today it is clearly a financial disaster. For some countries, a speedy end to their nuclear programs may be a prerequisite to resolving their debt crises.

THE WORLD IS NOW in transition from rapid growth of nuclear power in the late 1970s and early 1980s to very slow growth in the 1990s. Between 1981 and 1985, 95,800 megawatts of nuclear capacity came on line worldwide (excluding the Soviet Union and Eastern Europe), and 86,500 megawatts are scheduled for 1986–1990. But just 18,400 megawatts are scheduled for 1991–1995—a 79 percent decline in five years.

In North America and Western Europe, net additions during the 1990s will probably be lower than these figures indicate and could well be outweighed by cancellations. The wild card in international forecasting is the Soviet Union. Official Soviet plans call for 40,000 megawatts of new nuclear plants between 1986 and 1990, but even before Chernobyl it was unlikely that the target would be met. If the Soviet nuclear program instead proceeds at its 1985 pace of five plants a year, global nuclear capacity could peak before the end of the century as the retirement of aging plants exceeds new generating capacity. Even that pace may not be sustained and the more the Soviet program is set back, the sooner the global peak will come.

Nevertheless, the weight of official policy in many nations is still behind nuclear power. The head of the Soviet delegation to the 1986 IAEA meeting said that "the exploitation of the atom's energy has become a realistic requirement, and is preconditioned by interests of human civilization progress." West German Chancellor Helmut Kohl told a national television audience: "Abandoning nuclear power could spell the end of the Federal Republic as an industrialized nation." Energy Secretary Peter Walker of the United Kingdom said: "If we care about the standard of living of generations yet to come, we must meet the challenge of the nuclear age and not retreat into the irresponsible course of leaving our children and grandchildren a world in deep and probably irreversible decline."[13]

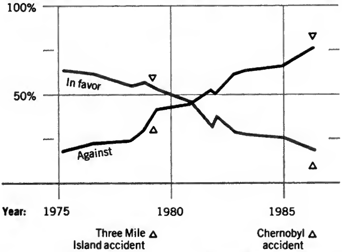
The leaders of three of the world's most economically powerful nations could hardly state their faith in nuclear power more forcefully. Yet a growing number of national leaders take the opposite position. Chernobyl sparked the formation of a "non-nuclear club" composed of countries with the capability and past inclination to rely on nuclear power, but which have decided to forgo this source of energy. Several countries, including Australia, Denmark, and New Zealand, made deliberate decisions in the early 1980s not to develop nuclear power, and Sweden made plans to phase it out. Chernobyl led Austria's government to decide to dismantle the country's only reactor at Zwentendorf. Corazon Aquino, president of the Philippines, announced soon after Chernobyl that the newly completed Bataan nuclear plant would be dismantled. Greece's socialist government abandoned plans for that country's first reactor.

THE NON-NUCLEAR CLUB may soon gain some new members. Although the ruling government in West Germany favors nuclear power, the opposition Social Democratic party is pushing to close the country's plants. The future of the nuclear program there will depend on political developments, but according to Britain's influential *Financial Times* (January 14, 1987), "signs are multiplying that a long slow German march away from atomic energy may already be under way." In Italy, a national referendum is planned for this year to decide the fate of the country's nuclear program. Switzerland and Britain appear to be moving slowly toward similar decision points.

The further question—what will replace nuclear power—

remains largely unaddressed in most countries, although some discussion has begun. Many West European countries are reevaluating the potential for increasing energy efficiency and developing alternative energy sources. The West German Greens and Social Democrats think it possible to phase out nuclear power in 10 years or less, in part because West German generating capacity now outruns demand by some 20 percent. But in the long run new sources will be necessary and both West Germany and Greece have reinvigorated their renewable energy programs since Chernobyl. The Swedish government commission recommending a 10-year phaseout also called for increased investment in energy alternatives.

As a practical matter, it is questionable whether countries can or should base their power systems on technologies that much of the public finds objectionable. Modern societies are confronted with many controversial issues, but the nuclear endeavor is almost unmatched in the steadily mounting resistance it faces. In the United States, opposition to building nuclear power plants rose from 19 percent in 1975 to 78 percent (following Chernobyl) in 1986.



U.S. public opinion on building more nuclear power plants

Informational graphics: Michael Yanoff

A similar shift appears to have occurred in Europe. Although Three Mile Island and Chernobyl stirred public opinion, there is more at work here. Simply put, many people believe that nuclear power programs have gone badly awry, they do not trust officials to fix the problems, and they would rather rely on some other energy source. Public opinion now differs profoundly from official policy in many countries, and over time these differences may begin to tear at the national political fabric. The political cost of government pro-nuclear campaigns could well exceed potential benefits.

The extent of opposition to nuclear power may also reflect a realization of the ultimate implications of pursuing the nuclear path. If the plans laid in the early 1970s were realized, by the year 2010 several thousand fission reactors would be operating, many at the edge of large cities. Hundreds of breeder reactors would be fueled by plutonium, transported along the world's highways and railroads from the reprocessing plants where it had been refined. Nuclear power plants, fuel manufacturing facilities, and waste sites would be as common in 2010 as steel plants are today. Without a major improvement in industry performance, serious nuclear accidents would be regular occurrences in the twenty-first century.

The world's nuclear leaders have lost their early vision but have not found a new one. In the aftermath of Chernobyl, there is an almost overwhelming feeling among the general public that the current generation of nuclear technology is simply not working. This deep-seated disenchantment can only presage a continued decline for nuclear power. For energy, as for all important issues in democratic societies, the final decision must be made, as Albert Einstein put it, "in the village square." Energy is, at base, a political issue. In this context, nuclear power's prospects have never been dimmer.

Chernobyl's true cost remains unknown, but its challenge is clear. Nations must set about developing a new energy vision, to carry them beyond the divisive, often debilitating, struggle that has come to seem inherent in the very word "nuclear." ☐

---

1. IAEA, *Nuclear Power: Status and Trends, 1986* (Vienna: IAEA, 1986); Worldwatch Institute projection based on assumed completion of 70,000 megawatts by 1990 and 55,000 additional megawatts in the 1990s, mainly in the Soviet Union and Eastern Europe. The year 2000 estimates are somewhat speculative but the actual figures are more likely to be lower than projected than higher.
2. "World List Nuclear Power," *Nuclear News* (Aug. 1986).
3. Atomic Industrial Forum (AIF), "Historical Profile of U.S. Nuclear Power Development," (Bethesda, Md.: AIF, Jan. 1, 1986); AIF, private communication, Jan. 8, 1987; U.S. Department of Energy, Energy Information Agency, *Nuclear Power Plant Construction Activity 1985* (Washington, D.C.: U.S. Government Printing Office, 1986).
4. *Nuclear Power Plant Construction Activity 1985.*
5. Frederick Rose, "'Prudency Reviews' Are Changing the Way Utilities Set Rates," *Wall Street Journal*, Oct. 2, 1986.
6. Nuclear Energy Agency, *Projected Costs of Generating Electricity from Nuclear and Coal-Fired Power Stations for Commissioning in 1995* (Paris: Organization for Economic Cooperation and Development, 1986); David Marsh, "Nuclear Power in West Germany: The Consensus Lies in Tatters," *Financial Times*, Jan. 14, 1987.
7. The material on recent political developments in Western Europe, as well as much of this article, draws upon personal observations based on discussions with officials and academics in five countries in August 1986, and on official and press reports.
8. Theodore Shabad, "News Notes," *Soviet Geography* (April 1986); Andrew Holmes, "World Status: Nuclear Power," *Energy Economist* (Jan. 1986).
9. See, for example, George Stein, "Soviet Nuclear Industry Riddled with Problems," *Los Angeles Times*, May 16, 1986.
10. Gary Lee, "Soviets Begin Recovery from Disaster's Damage," *Washington Post*, Sept. 27, 1986; "Soviet 5-Year Plan Affirms Role of Nuclear Power," *New York Times*, June 19, 1986.
11. See, for example, John J. Fialka and Roger Cohen, "Nuclear-Plant Projects in Nations like Brazil Falter after Accident," *Wall Street Journal*, June 5, 1986.
12. Lee A. Daniels, "3 U.S. Bids Chosen by Koreans," *New York Times*, Oct. 2, 1986.
13. "Nuclear Power Controversy Balloons in West Germany," *Journal of Commerce* (Sept. 22, 1986); David Fairhall, "'No Retreat from Nuclear Age,' Says Walker," *Guardian*, June 27, 1986.

A Soviet expert discusses Chernobyl

The following is a transcript of an April 1987 interview with Valery Legasov, first deputy director of the I.V. Kurchatov Institute of Atomic Energy in Moscow, the leading Soviet institute on nuclear power. It was conducted in Moscow by Nikolai Vikhlyayev, Novosti Press Agency correspondent, and covered the status of the Chernobyl reactor, the health of persons near the reactor during and after the 1986 explosion, and future plans for the Soviet energy industry. Legasov was a member of the scientific team appointed to clean up Chernobyl and investigate the causes of the accident. He headed the Soviet delegation to the International Atomic Energy Agency session on Chernobyl in Vienna in August and September 1986.

Vikhlyayev: *What is the overall result of the accident at the Chernobyl nuclear power station? Has the accident influenced the Soviet program for the development of the nuclear power industry?*

Legasov: A year ago the most serious accident in the history of the nuclear power industry occurred. Perhaps this is the largest accident in the history of industrial development in general. Its detailed results will be summed up much later, when the work aimed at normalizing the station's area and the 30-kilometer zone around it is finished. It is only after the completion of this work that concrete figures, medical and other statistics, can be given.

One of the main conclusions is that in our complex world studded with powerful technical facilities, almost improbable events can take place and their consequences turn out to be very serious. It has turned out also that a nuclear mishap brings about huge economic losses and difficulties in restoring buildings, industrial facilities, and territories.

Although the consequences of the Chernobyl disaster are very serious—31 people have perished, over 200 persons have acquired radiation sickness—the history of our time knows accidents when human losses were greater by many orders of magnitude. If we regard the Chernobyl breakdown in this respect, it is not the most terrible. But in the size of the area affected, the contamination of the environment, and economic losses related to the necessity to carry out restoration work in very difficult conditions, this, of course, is an extremely grave accident. It has called for very close attention to safety regulations at other nuclear stations.

The second result of the accident is the enormous experience we have acquired. Before the accident and during the first days after it, few people believed that such a disaster could be coped with, that people and equipment would operate successfully in such extreme conditions. Experience has shown that even in the case of such a serious breakdown, events are governable; that it is possible to take appropriate measures to bring the station and the 30-kilometer zone around it into their current condition. It has become clear for us that the situation can be normalized finally with the passage of time. If we had been more prepared for an accident like this, the efforts exerted for the elimination of its consequences would not have been so great.

Valery Legasov, first deputy director of the I.V. Kurchatov Institute of Atomic Energy: "On the whole, radical changes will not be made, but the safety factor will be a priority." *Courtesy* Soviet Life; *Novosti Photo*

As for the influence of the accident on the program for the development of the Soviet nuclear power industry, I can put it like this: the motives requiring the development of the nuclear power industry have not changed. They are linked with the geographical distribution of organic fuel sources in the east, while industry is mainly concentrated in the west of this country. The goal set in the Soviet energy program—to raise the capacity of nuclear power stations by 400 to 600 percent by the end of this century—will not be revised. I think that the realization will be closer to the lower target than to the higher one since a number of design and technological decisions must be modified for enhancing the safety of nuclear power stations.

The structure of the nuclear power industry will perhaps be somewhat changed. Probably, several more powerful nuclear stations that were planned will not be built. Perhaps we shall not exceed current plant capacities. We shall take into account the lessons of Chernobyl in choosing the construction sites for new nuclear power stations, which also may influence the time factor. On the whole, radical changes will not be made, but the safety factor will be a priority.

What can you say about decontamination work at the site of the accident and around the station? Are there zones closed to the population and the station's staff?

Copyrighted material

Today the station's area is to a large extent decontaminated. The greater part of its territory is practically close to normal, but there are still contaminated sections where cleanup operations are continuing. For instance, such operations are now underway around and inside the third generating unit. At present, the contamination levels are small as compared with those observed at the end of April and in May of last year. The roads, settlements, and buildings inside the 30-kilometer zone have been fully decontaminated, and the population has been resettled to some regions within the zone. But there are sections in this zone to which people will not be allowed to arrive for normal life until much later.

The entire 30-kilometer zone, with the exception of the places where people have already been settled, continues to be closed to the population, and the appearance of people there is controlled. At the station itself, the territory of the fourth unit continues to be closed. The fourth unit and its sarcophagus are open only to operating personnel and researchers who are directly involved in observations of its condition.

There are some districts outside the 30-kilometer zone—an arbitrary zone that was established during the first days after the disaster—which are contaminated by strontium and cesium. People live in these districts but they eat foodstuffs brought from other regions. They lead quite a normal life; they are not exposed to any noticeable exernal radiation, but foodstuffs grown in this territory are not recommended for use.

What can you say about the sarcophagus? What is it?

The sarcophagus around the fourth unit has been built. Along its entire perimeter and height the unit is encased in concrete. On the top there are sealed pipes and metal platings. The capacity of all structures of the sarcophagus and the thickness of its walls are enough for guaranteeing that radiation from fuel, which has remained inside it, will be low both on the walls of the sarcophagus and dozens of meters away from it. The state of the sarcophagus, as far as the strength of its structures is concerned, is kept under constant control. At many points on the sarcophagus, control is exercised by piezoelectric transducers (strain gauges). Methods for the external observation of the state of all structures are also used.

Under the groundwork of the fourth unit a plate has been installed with cooling systems, which so far have not been switched on since there was no need for them. Besides, there is a large number of points of control over the temperature of the air, panels, and walls. This control is exercised on a round-the-clock basis. The radiation situation inside the sarcophagus is also constantly monitored. For this purpose, use is made of gamma-radiation and neutron-flux sensors. The content of hydrogen and other components that may appear in the air is controlled and the isotopic composition of aerosols is monitored. All of these devices form a system of diagnostics of the fourth unit.

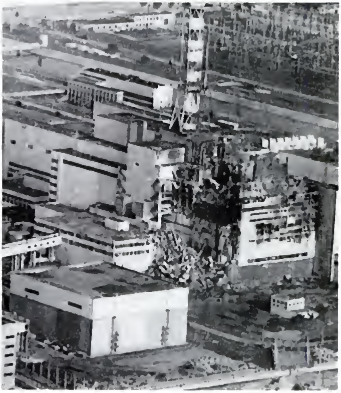
During the entire time of observations of the fourth unit, no anomalies in its behavior have been detected. The maximum temperature does not exceed 120 degrees centigrade. Emissions after air purification through filters are very small and amount to several millicuries. Maximum permissible concentrations for any isotopes are not exceeded, even at the point where emissions exit from the buildings, to say nothing of the level of a man standing on the ground.

What is the condition of the exposed people? Have all of them been discharged from hospitals? Are the health conditions of the evacuees checked?

As far as I know, all 200-odd people who have developed radiation sickness have left the hospitals. Since the very first days after the accident and up to now, the health of evacuees from the 30-kilometer zone and of those who continue working at the station or in the zone has been checked up. All-round diagnosis of the general condition of the people is periodically carried out, and the composition of their blood is checked. Particular attention is paid to the thyroids and lungs. To the best of my knowledge, no anomalies have been detected among the evacuees.

The Chernobyl mishap has cost the Soviet economy dearly. What is the sum total of the losses? Can you speak in more detail about various economic aspects of the losses?

Direct expenses on the elimination of the consequences of the accident are estimated at about 2 billion rubles [about $3 billion]. These expenses include sums spent on the erection of the sarcophagus, the decontamination of the territory, construction of new housing for the evacuees, and compensation payments. Today I am not ready to describe in detail other economic aspects because it will take some time to sum up the work done.



A May 9, 1986 photograph released by the Soviet news agency TASS shows the damage done to Chernobyl reactor 4. *(AP/Wide World Photo)*

Of course, there are some indirect losses, too. I mean that a 1,000-megawatt unit has been ruined and will never be returned to the country's economy. Another 1,000-megawatt unit, the third unit, has not yet been restarted. The other two units did not generate electric power for several months. As a result, during this period of time an acute shortage of electricity was felt in some regions. The normal rhythm of work of entire regions was disrupted. Many builders and technical facilities were sent to Chernobyl instead of being used at other planned projects. Some of these facilities will be used in the economy again after cleanup operations, but some have been lost for good. This incurred additional economic damage, which subsequently will be assessed.

The West believes that the first and second reactors have been restarted too hastily. What do you think about this? What is the fate of the third reactor?

I don't think so. In the first place, all necessary cleanup operations of the territory and structures adjacent to these units and inside the building itself have been carried out successfully. This made it possible to bring the dose loads at the staff's quarters to the normal level. Secondly, the entire equipment was checked over without any haste and the performance of both units was carefully tested. Thirdly, before restarting both units, measures worked out by scientists and designers for enhancing security on high-power channel-type reactors were taken. It was only after the implementation of all these measures that the first and the second units were restarted in September and October 1986.

Since then both units have been operating normally. Appropriate safety of the staff and equipment has been insured. It is also obvious that we need electricity.

Cleanup operations are now underway without any haste at the third unit to bring it into the same state in which the first and second units are now. This work is being conducted carefully, with proper dosimetric control, constant repeated assessments of the situation, and ever more thorough decontamination efforts. Then the revision of equipment and the evaluation of its condition will begin. When all these operations are over, the fate of the unit will be decided. The third unit was contaminated to a greater extent than the first two units because it is housed in the same building with the ruined fourth unit. Decontamination operations are now being performed step by step at the third unit and it is hard to give the time of its restarting. The volume of decontamination is much larger at the third unit, and the latter calls for a much more careful revision of equipment. The radiation situation there has been radically improved as compared with that after the breakdown. After the accident the contamination level reached several roentgens per hour and at some points was even higher. Today it is estimated just at several dozens of milliroentgens per hour. Our goal is to reach the level of several milliroentgens per hour. Then work will become possible there. On the whole, I can state that the situation on the third unit is constantly improving, both on the unit's roof and inside the building.

Has the construction of the fifth and sixth reactors begun?

At the sites where the fifth and sixth units were under construction, work has been stopped. I think that later on, the decontamination of these construction sites will be started. The decision concerning the continuation of the construction of these units will depend on the quality of cleanup operations and the on the radiation situation there. Now that the decontamination of the third unit is still not completed, it is premature to speak about decisions which might be taken regarding the fifth and sixth units.

It has been announced that the safety of reactors of the type used at the Chernobyl station will be increased. How much will this cost? Has the implementation of this program begun? Will Western, specifically French and West German, companies take part in it?

The program of enhancing the safety of these reactors (high-power channel-type reactors), which has been in the main implemented, and additional measures that will subsequently be taken for raising the degree of fuel enrichment, will require several million rubles per reactor. The exact sum will be determined upon the completion of the entire work because the designers repeatedly make new modifications to increase safety.

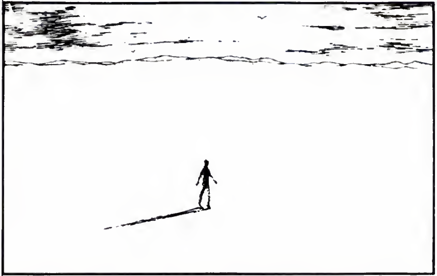
Today the safety of all units of high-power channel-type reactors has been greatly increased. I think that their safety will continue to be enhanced because new devices, methods, and ideas will appear. To my knowledge, Western companies do not directly participate in deliveries of equipment, in designing any elements for units, or in training the staffs of such reactors—that is, in measures geared toward their greater safety. This has not been done and apparently will not be done because such reactors have no analogues in the world.

However, indirect participation through scientific and technological contacts with many Western firms and research organizations has been started. For instance, we can cooperate with Western companies in implementing certain promising ideas—in checking the necessity of using new technical devices at nuclear power stations. Cooperation in this sense is welcomed.

Is the Soviet Union going to raise the issues of safety of nuclear power stations internationally?

Immediately after the Chernobyl accident some problems of safety of nuclear power stations on an international scale were raised in the televised address by General Secretary Mikhail Gorbachev. These concrete Soviet proposals were discussed at the IAEA [International Atomic Energy Agency] special session held in Vienna in September 1986. Most of them were approved and two major conventions were signed—on the transfer of information in case of accidents at nuclear stations and on mutual assistance in case of such accidents. Today a number of measures to raise the overall safety of nuclear stations are being actively discussed under the aegis of the IAEA and within the framework of bilateral relations between various owners of nuclear stations. The Soviet Union has raised such issues and is implementing some proposals through the IAEA and at a bilateral level. ☐

WHERE IS THE CONSCIENCE OF THE NATION?



More and more Americans are hungering for the kind of basic human values that can hold together families, communities, and the nation.

Our country, which has become so rich and powerful, now more than ever needs to find its conscience. And needed dissent and new ideas are coming from religious communities around the world.

Despite the media's narrow preoccupation with the Christian Right, there is another story to be told about what's happening in the churches today. A story of faith on the front lines. A story of voices of conscience and courage. And a story of spiritually based commitments to justice and peace.

Sojourners tells that story.

Both an independent Christian monthly and a community of faith, *Sojourners* was born 15 years ago challenging both the war in Vietnam and racism at home.

Eleven years ago, *Sojourners* published the first investigative report describing the plan of the Religious Right to take over American politics.

Seven years ago, *Sojourners* helped organize what became the Nuclear Weapons Freeze Campaign.

Four years ago, *Sojourners* helped create Witness For Peace, which continues to be an important peaceful presence in Nicaragua, challenging the Reagan administration's foreign policy there.

Three years ago, *Sojourners* launched the national Pledge of Resistance, which has become the primary direct action arm of citizens nonviolently opposing U.S. militarism in Central America.

Two years ago, *Sojourners* exposed the trail of dollars from conservative U.S. church groups, including Pat Robertson's Christian Broadcasting Network, to the *contras* in Nicaragua.

And today, *Sojourners* is mobilizing religious opposition to the Star Wars scheme and forging bonds of reconciliation and solidarity across Cold War battle lines.

For 15 years, *Sojourners* has been at the forefront, challenging, nurturing, and building what has become a powerful new movement of faith and conscience inside and outside the church today.

Sojourners has been called both radical and conservative, evangelical and Catholic, activist and contemplative, personal and political.

Our contributing editors and writers include Allan Boesak, Penny Lernoux, Garry Wills, Rosemary Ruether, Daniel Berrigan, Richard Barnet, Vincent Harding, Elizabeth McAlister, and *Sojourners* editor Jim Wallis.

We invite you to subscribe and join the community of *Sojourners* readers who together are seeking and helping to form the conscience of the nation. Just return the attached coupon.

Send me two free issues of *Sojourners*.

If I like the magazine, I will pay $15 (29% off the regular subscription price) for a full year—11 issues.

If I am not fully satisfied, I'll write "cancel" on the bill and return it to you, with no further obligation.

Add $4 for each subscription outside the U.S.

NAME

ADDRESS

7202 CITY/STATE/ZIP

SOJOURNERS: *A Voice For Christian Conscience*

Box 29272, Washington, DC 20017 (202)636-3637

Holes in the U.S. nuclear safety net

After Three Mile Island, the nuclear industry promised to take up the safety initiative where Nuclear Regulatory Commission standards leave off. But industry efforts are not made public, and mishaps are still occurring.

by Daniel Utroska

AT 1:35 A.M. ON JUNE 9, 1985, one of the pumps supplying water to the steam generators at the Davis-Besse nuclear plant near Toledo, Ohio unexpectedly switched off, triggering a series of events that placed the 860,000-kilowatt unit in a dangerously unstable position. Without immediate countermeasures, a meltdown would have been inevitable. Thirty minutes later, after a dozen major component malfunctions and a series of serious misjudgments by reactor operators, the plant was stabilized when water was restored to the generators by alternative means.

The Nuclear Regulatory Commission (NRC) noted in its report on the accident that the underlying cause had been Toledo Edison Company's "lack of attention to detail in the care of plant equipment." The investigating team found that Toledo Edison had "a history of performing troubleshooting, maintenance and testing of equipment, and of evaluating operating experience . . . in a superficial manner and, as a result, the root causes of problems are not always found and corrected." Toledo Edison ultimately paid $450,000 in fines, half of the $900,000 the NRC initially levied. The NRC staff mitigated the penalty because it believed Toledo Edison had been "aggressive" in pursuing appropriate corrective action after the accident.[1]

Edward J. Markey, chairman of the House Subcommittee on Energy Conservation and Power, the congressional nuclear oversight committee, called the Davis-Besse accident "one of the most serious nuclear mishaps since the 1979 accident at Three Mile Island." The case is an example of how nuclear plant accidents with potentially devastating consequences can occur despite safety review programs established by the NRC, the nuclear industry as a whole, and individual nuclear utilities.

Contrary to popular perception, the NRC has neither the authority nor the resources to comprehensively regulate the nuclear power industry: it cannot check and monitor every nuclear plant in detail to assure reasonable reactor safety. This is widely understood within the power industry. After the Three Mile Island accident, the nuclear industry formed a group called the Institute of Nuclear Power Operations (INPO), based in Atlanta, Georgia. Its self-proclaimed mandate is to pick up the safety initiative where NRC regulations and reviews leave off; to make sure that each nuclear plant in the United States goes beyond compliance with minimum regulations and achieves "excellence" in safe and efficient performance.

Marco De Angelis, Il Popolo, Italy

INPO's 1986 budget was $44 million, paid to the institute by electricity ratepayers via the nuclear utilities. Among other things, the money funds INPO's development of nuclear plant operating criteria and pays for plant inspections to determine if the standards are being met.

INPO has deliberately maintained a low profile. "INPO does not become involved in public or media activities on behalf of the industry or in the role of promoting the nuclear power option," the organization's formal institutional plan declares. A key aspect of INPO's public noninvolvement is keeping to itself and its members the results of its nuclear plant safety evaluations. Although consumers fund INPO activities and have a stake in nuclear plant safety, the press and the public are denied access to INPO safety investigation reports.

Daniel Utroska, formerly associate editor at Nuclear News *and* Electric Light & Power *magazines, is a freelance journalist specializing in energy and the environment.*

INPO also seeks to maintain distance from the NRC. A 1985 memorandum of agreement between the two organizations sets out certain relationships between the NRC's regulatory requirements and INPO's voluntary industry safety initiatives. In essence, while INPO agrees to disclose to the NRC all of its safety findings, exactly what it discloses and when are subjectively determined and conditional, requiring "only the parties' best efforts and a reasonable degree of care."

Another concern of some nuclear officials and critics is that since the memorandum was signed, efforts to eliminate duplication have meant that INPO has taken over some initiatives that before were the sole responsibility of the NRC, and safety appears to have been compromised.

THE NRC STILL RETAINS the authority to shut down a nuclear plant if it is judged unsafe, however, and the agency came down fast and hard on Philadelphia Electric Company last March when it discovered that nuclear control-room operators were sleeping on the job at Unit One of the company's Peach Bottom plant. In its order shutting down the plant, the NRC said that the problem "was pervasive and has been occurring for some time, and that shift supervisors had knowledge of this situation. . . . Sleeping while on duty in the control room demonstrates a total disregard for performing licensed duties and a lack of appreciation for what these duties entail."

The NRC action at Peach Bottom may represent a new regulatory toughness, a greater willingness to impose severe sanctions in circumstances short of an accident. In congressional hearings in October 1985 on the Davis-Besse accident, NRC officials admitted that the agency had been reluctant to impose strong sanctions without a precipitating event but said that they would be quicker to act in the future. The Peach Bottom action seems consistent with that resolve.

Yet, despite the NRC's unquestionable contribution to nuclear safety in the United States, agency regulations and enforcement constitute only minimum safety activities and fall far short of covering the industry. Most people are unaware that the nuclear industry and individual electric utilities have primary, first-line responsibility for safety.

There is little debate about this within the industry, especially since Three Mile Island, and nuclear advocates regularly pay lip service to the notion. "In terms of safety, the industry fully accepts and supports the NRC's role in setting and enforcing regulatory requirements," INPO Vice President William F. Conway told an industry nuclear safety conference in January. "However, it is the industry's belief that a higher standard is necessary; and that of excellence in operations is possible only through self-initiated programs for improvement."

A similar statement comes from the NRC side, from its Advisory Committee on Reactor Safeguards, a group of engineering professors, science researchers, and former nuclear plant operators: "[The NRC] has developed a regulatory system that is so comprehensive, and frequently so prescriptive, that both the NRC and many of the operating utilities have come to believe, or act as though they believe, that compliance with the regulations is itself sufficient to assure safety," the committee said in a public statement. "The assumption that regulations and safety are synonymous may be dangerous and should be reexamined."[2]

Thus, both groups are saying that even if nuclear utilities faithfully implement NRC regulations, the plants are not necessarily safe. This is because NRC regulations are not, in all cases, precisely defined. The regulations are general and they must be applied to customized nuclear plant designs. The NRC and the utility concerned bridge the gap between the regulations and conditions under which the plant may be licensed by negotiating informal specification documents. These are not, strictly speaking, requirements.[3] In this often hazy gap, electric utilities' voluntary commitment to safety becomes crucial.

Still, in numerous cases where the regulations apply broadly and explicitly—where there is no gap—utilities fail to meet even these minimum standards, as Peach Bottom and other NRC-imposed sanctions clearly show. But counting the public penalties does not reveal the magnitude of utility regulatory infractions, because NRC inspections are part of an audit program that only samples licensee activities and nuclear plant systems.

In the Davis-Besse case, the agency knew of earlier infractions and safety deficiencies at the plant, but despite the "increased attention"[4] given to that unit, the agency was unable or unwilling to bring the full force of its authority to bear in time prevent a serious accident. For its part, Toledo Edison certainly had not tried to enhance safety, according to the NRC's accident report: "Equipment problems were not aggressively addressed and resolved beyond compliance with NRC regulatory requirements." Davis-Besse thus fell through the net of institutionalized scrutiny set up to protect the health and safety of the public.

While the NRC concedes that it could have been tougher in regulating Toledo Edison, the agency cannot be held legally accountable for such an accident. This was demonstrated after the Three Mile Island accident in March 1979, when General Public Utilities (GPU), the parent company of Metropolitan Edison Company, owner of Three Mile Island, sued the NRC for $4 billion. GPU charged that the NRC knew about a September 1977 loss-of-coolant accident—coincidentally at the Davis-Besse plant—that closely paralleled the Three Mile Island accident, but failed to disseminate that information so that corrective measures could be taken. GPU further charged that the NRC knew about faulty equipment at Davis-Besse and was therefore negligent in approving Three Mile Island construction plans that included the same equipment.

The suit was ultimately thrown out by the Third Circuit Court of Appeals, and the U.S. Supreme Court refused to hear the case. The appeals court determined that Congress had given independent agencies, including the NRC, broad discretion in conducting their regulatory activities, and that the Congress had exempted these discretionary functions from legal action in order to prevent judicial second-

Steam escapes from the giant cooling tower at the Davis-Besse nuclear plant near Toledo, Ohio. The problems at Davis-Besse are not unusual in an industry that takes pride in self-regulation. *Courtesy Toledo Edison*

guessing. Although the appeals court noted that the commission's judgment may have been ill-advised, this did not change the fact that the scope of the agency's investigation was solely a matter of its discretion. "If a government employee performing a discretionary function acts negligently, the exemption [from legal action] remains applicable even though the activity constitutes an abuse of discretion," the court said.

Thus, the NRC apparently cannot be held liable for its regulatory actions or inactions. This fact, coupled with the duty to set only minimum safety standards, demonstrates that the agency's role in reactor safety is clearly subordinate to that of the nuclear utilities.

YET VOLUNTARY UTILITY safety initiatives are also outside the realm of public accountability. INPO is the nuclear industry's institutional response to the need to encourage and monitor reactor safety. Established "to promote high standards of safety and reliability in the operation of the nation's nuclear electric generating plants," INPO evaluates operating nuclear plants, analyzes nuclear plant "events," and disseminates such information among nuclear utilities.

The institute looks at such elements as organization and administration, plant operations, equipment maintenance, and technical support. Investigators also try to assess corporate functions, examining such items as licensing and regulatory matters, document control, human resources, quality assurance, radiological protection, and emergency preparedness. Each plant is evaluated about every 15 months. INPO so far has conducted at least five rounds of evaluations for most nuclear plants.

INPO screens "events" that have safety implications and says it investigates them thoroughly. "Significant operating event reports" (SOERs) are said to cover incidents involving loss of coolant, the inability to shut down the reactor, or extensive release of fission products to the environment.[5] While INPO is under no statutory requirement to report these events to the NRC, the 1985 memorandum of agreement states that the institute will provide the NRC with timely listings of significant events identified by its screening processes.

The NRC can hardly be expected to relish INPO's efforts to pick up significant safety events that the agency might have missed. In any case, the significant operating event reports submitted to the NRC by INPO have yet to identify an important safety problem of which the NRC was not already aware, according to C.J. Heltemes, the NRC official in charge of reviewing the reports. "If there were a safety concern, [an NRC] bulletin would have hit the streets before the SOER was received," he said. An NRC bulletin is a high-priority communication to utilities, informing them of a problem and mandating corrective actions and a reply. Heltemes adds that INPO's reports typically do not address safety concerns in a specific plant but deal with more general considerations that should be addressed by all utilities and include recommendations for corrective measures.

Despite its comprehensive and repeated inspections, however, INPO was unable to prevent the 1985 Davis-Besse accident. The NRC had criticized the Toledo Edison management as far back as 1984 for failing to address certain safety issues at the plant, and as a result the utility had been slapped with a $90,000 civil penalty before the accident.[6] If the NRC knew about these inadequacies, and the public had access to this information through the NRC, why didn't INPO know of them as well and bring the weight of its organization to bear on Edison management? James J. O'Connor, chairman of the industry's Utility Nuclear Power Oversight Committee, says simply that the INPO evaluation process is not foolproof. He added in a recent interview that he did not know what INPO had recommended before the accident.

But the Davis-Besse accident, and others at Rancho Seco and San Onofre in California, as well as regulatory infractions such as the sleeping operators at Peach Bottom—all occurring after numerous INPO plant evaluations had taken place—suggest either that INPO is ineffective in identifying the industry's poorer performers or that it knows who they are but will not or cannot exert sufficient pressure to bring them into line. INPO says that it can suspend a utility from membership if the utility balks at implementing a technical improvement. But suspension has not yet been invoked; "strong and serious discussions" have been enough, INPO says, to get utilities to follow safety recommendations.

At a press conference last August 14, the Utility Nuclear Power Oversight Committee admitted that there were indeed "unsatisfactory performers" and recommended that INPO identify by name those plants in the highest and lowest evaluation categories. The action was seen as a message to its members that if internal sanctions were insufficient to bring about needed safety improvements, the organization was willing to go public.

But the INPO board of directors has since backed away from that threat, according to O'Connor, who says that identifying unsatisfactory performers "would inhibit the candor and openness of INPO." That is, if those in the lowest performance category thought they would be identified, they would be much less candid with INPO evaluators about the problems at their plants, and the chance to improve safety would be lost. Nevertheless, the fact that INPO seriously contemplated such action suggests that there are limits to the institute's ability to force plants to correct critical safety deficiencies.

A related issue is whether INPO's evaluation reports should be made public. O'Connor, who is also chairman and president of Commonwealth Edison Company in Illinois, the largest investor-owned nuclear utility in the country, said that if the reports were to be released they would have to be written in terms the public could understand, and this would diminish their usefulness in communicating complex technical information to nuclear plant personnel. "We don't think it is fair to write for a public audience," O'Connor said. "It would take far, far more effort and possibly be far less meaningful."

Further, INPO asserts that any effort to demonstrate to the public the effectiveness of its safety review process is equivalent to assuming a nuclear advocacy role, and it wants to stay clear of this. "INPO has never tooted its own horn," O'Connor said. He contends that the organization has improved nuclear safety since it began operation in 1979, and since that time has always been more interested "in substance than in form."

Moreover, INPO officials fear that the evaluation reports, if made public, would be exploited by nuclear critics. They prefer to withhold reports and suffer public skepticism about INPO's effectiveness.

Individual utilities are free to release the evaluation reports and on some occasions have done so. But Toledo Edison has refused to release its reports on Davis-Besse. The utility claims that INPO felt free to include in these reports candid plant assessment findings only because it was assumed that the contents would not find their way into the morning newspaper. "It has been our policy to honor that," a company spokesman said.

NRC commissioner James Asselstine, who often assumes positions on safety issues counter to those of industry and his fellow commissioners, goes along with the industry on this issue. "There is a value in INPO's process," he said in an interview, "and we ought not to interfere with this by releasing their reports."

Although Asselstine thinks public pressure is important, he holds that the NRC, through its own processes, can bring about the needed public influence. In response to a congressional request, the NRC last year compiled its own ad hoc list of the best and the worst nuclear plants in the United States, and according to Asselstine this compilation effort is now being formalized. The lists are to be revised each quarter and if released to the public will spotlight the poorer performers. The commissioner notes that while he does not now support public disclosure of INPO evaluation reports, he does believe that INPO should identify unsatisfactory performers.

Although the public does not have access to INPO's evaluation reports, the NRC does—provided the reports themselves are never actually turned over to the commission. If the NRC were to take possession of the reports, it would be obliged, under the Freedom of Information Act, to turn them over to reporters and members of the public who request them. Therefore, NRC personnel travel either to INPO headquarters in Atlanta or to individual utilities to review the reports.

Congressman Markey sees this sort of cooperation as a conspiracy: "Nuclear power in the U.S. is . . . subject to policies of public exclusion and conspiratorial silence, as evidenced by industry's decision to keep its reports of safety problems secret, and the NRC's decision to abide by industry's wishes," he thundered in opening remarks to a reactor safety hearing last summer.

ALTHOUGH THE NRC/INPO memorandum of agreement sets out areas of cooperation between the two organizations, in a number of key areas INPO seeks the same arms-length distance from the NRC that it now has with the public. "Entanglement of NRC activities and INPO programs diverts INPO and NRC from their respective missions," INPO asserts in its institutional plan.

INPO correctly views NRC regulations as objectively determined conditions necessary for a utility operating license, but sees its own criteria as broad, subjective standards in the areas of utility construction and operation: INPO nuclear plant evaluations stress assistance to nuclear utilities in meeting certain performance goals. "It is because of these differences that INPO and its members conclude there should be a clear separation between INPO evaluations and NRC inspections," the institute contends.

But Commissioner Asselstine says that when INPO sets criteria in certain areas, as a basis for its evaluations, the institute, in effect, is telling the NRC, "Leave these things to us," and the agency is expected to defer to INPO on items that might otherwise be regulatory mandates. According to Asselstine there are demonstrated weaknesses throughout the industry in the areas of human performance, preventive maintenance, equipment reliability, and utility management, because there are few, if any, regulatory requirements in these areas. Asselstine believes that federal standards are needed so that enforcement actions can be taken.

For its part, INPO is making sure that NRC regulations remain minimal. And in some cases the institute may even have compromised safety through its industry initiatives. According to Asselstine, the NRC was well on its way to developing a drug testing program for nuclear workers. But before the program could be codified in agency regulations, the industry adopted its own voluntary standard. In response, the NRC backed away from its regulatory effort and instead issued a "policy statement" on the matter. This policy statement is not enforceable, Asselstine says, and what exists now is a loose, broad "hodgepodge" of drug testing criteria.

APART FROM THE COLLECTIVE approach to safety, each electric utility is expected to take safety initiatives beyond minimum regulatory requirements. But the escalating costs of nuclear plant operation and the utility company's need to show a profit discourage voluntary expenditures for safety purposes.

Average annual nuclear industry operation and maintenance costs, corrected for inflation and industry growth, have risen from about $14.80 per kilowatt in 1970 to about $58.40 per kilowatt in 1985. These costs may be expected to reach $86 per kilowatt by 1995.[7] Aging equipment, increased radiation levels, greater than anticipated outage rates, and other unforeseen problems contribute to these cost increases.

Capital additions, the costs electric utilities are required to spend on their nuclear plants after they are completed and are operating, are also rising dramatically. In real terms they increased from about $4.40 per kilowatt in 1970 to about $24.20 per kilowatt in 1985 and are expected to reach $51 per kilowatt by 1995. Steam generator problems at pressurized-water reactors and the emerging problem of reactor vessel embrittlement are examples of unanticipated problems that require large expenditures during the operating life of nuclear facilities.

These costs provide strong reasons for nuclear utilities to resist plant modifications in all but the most egregiously dangerous situations. On top of this, public service commissions around the country are scrutinizing utility expenditures closely, feeling pressure from politicians and ratepayers to lower electricity costs. Sometimes commissions require the most convincing evidence that plant retrofits and refurbishings are actually needed. In addition, some commissions are imposing economic penalties on utilities if certain standards of efficiency are not achieved. Both developments have serious implications for reactor safety.

Nuclear performance incentive plans, sometimes involving millions of dollars to the utility, are now applicable to the construction or operation of 41 reactors in 16 states. The danger is that construction or maintenance work may be hurried and operating standards may be compromised for economic reasons. Former NRC commissioner Victor Gilinsky has said of such plans: "Utility resistance to spending additional money on NRC's safety suggestions is already fairly strong, and one ought not to be adding to that, certainly not without a great deal of thought."

Gilinsky, now a private energy consultant, acknowledged that nuclear power is a "dangerous technology that takes dedicated care to keep it within safe bounds." He warned about upsetting the delicate safety balances that have been struck over the years: "We need to be very careful about altering a utility's incentives to install additional safety equipment if they feel the need for it. The conditions that make for nuclear safety remain a subtle matter, subject to the judgment of technical experts. As in all such situations, small differences in style of decisionmaking can lead to large differences in performance, and possibly to large consequences."[8]

THE CONSEQUENCES are indeed large. A July 1986 General Accounting Office report estimates off-site costs of a catastrophic nuclear plant accident as ranging from $300 million to $15 billion. Such an accident would involve extensive core damage, failure of all safety features, and a massive early breach of the reactor containment. Estimates for an accident involving similar conditions but allowing for some operable safety systems and a delayed breach of the containment would be less: from $5 million to $220 million. The human suffering would be incalculable.

The ultimate question is whether the nuclear power industry generally and individual utilities in particular are willing and able to scrutinize, identify, and remedy anything that could reasonably lead to an accident. INPO has this responsibility and wants to be taken seriously when it says, as did Vice President Conway in January: "We owe the public our very best effort to achieve nuclear plant safety and reliability, for it is the public to which we are all accountable." Yet the institute has an unconventional sense of accountability, believing that it can be publicly accountable while maintaining an independent posture and keeping utility interactions private.

As Gilinsky observes, speaking of utility responsibility for nuclear safety: "We have little choice but to put ourselves in the hands of the technical experts and . . . to [have these] experts cross-check the work of other professionals in the field." By refusing to release its evaluation reports to the press and the public, INPO effectively prohibits independent expert evaluation. This raises questions of INPO competence and effectiveness.

Since the public pays for all INPO activities, responsibility for demanding accountability rests, ultimately, with the public's representatives: consumer groups, public utility commissions, and the press. Greater accountability may well enhance reactor safety. Today, however, according to Commissioner Asselstine, "The bottom line is that, given the present level of safety . . . we can expect to see a core meltdown accident within the next 20 years, and it is possible that such an accident could result in off-site releases of radiation which are as large as, or larger than, the releases estimated to have occurred at Chernobyl." ☐

---

1. U.S. Nuclear Regulatory Commission, "Order Imposing Civil Monetary Penalties," Docket No. 50–346 (Feb. 12, 1987).

2. "ACRS Suggestions for an NRC Long-Range Plan," NRC press release 86–146 (Oct. 23, 1986), p. 11.

3. See, for example, Victor Gilinsky, remarks at the Nuclear Power Plant Safety and Reliability Seminar, Valley Forge, Pa., Jan. 23, 1987.

4. James M. Taylor, director, NRC Office of Inspection and Enforcement, to John Williamson, chairman and chief executive officer, Toledo Edison Company, Dec. 13, 1985.

5. Zack Pate, president and chief executive officer, Institute of Nuclear Power Operations, testimony before the U.S. Senate Energy and Natural Resources Committee, 99th Cong., 2d sess. (June 19, 1986).

6. Taylor, op. cit.

7. Estimates are from ESRG, a Boston-based research firm specializing in energy issues.

8. Gilinsky, op. cit.

New Zealand paying for nuclear ban

The United States has placed nuclear theology above friendship and has sought to punish New Zealand for its antinuclear stand, as a lesson to more strategically important countries that might be considering similar actions.

by Kevin P. Clements

NEW ZEALAND'S antinuclear stance represents one small country's unilateral effort to stimulate more rapid progress on bilateral and multilateral disarmament negotiations and wean the superpowers from their dependence on nuclear weapons. But the overall costs and benefits of its policy, declared in 1984, are difficult to assess. Symbolically, the country's willingness to stand up to the United States and other nuclear powers has had a heartening effect on the antinuclear movement throughout the world. At the same time, New Zealand has been under considerable pressure, particularly from the United States, and the repercussions are being felt internally.

Among the major consequences of New Zealand's unilateral antinuclear stance are the following:

- The ANZUS (Australia, New Zealand, United States) relationship is no longer operational between Washington and Wellington because the United States cannot adjust to the idea of an unequivocally non-nuclear ally.
- New Zealand's bilateral defense relationship with Australia has improved, and non-nuclear and nonmilitary approaches to security in the South Pacific are getting more attention. There are, in effect, now two ANZUS links—one between Australia and the United States and one between Australia and New Zealand. This puts Australia in a potentially strong bargaining position with respect to Wellington and Washington.
- New Zealand has refrained from translating its international antinuclear profile into specific new disarmament initiatives. This may be because, as critics suggest, advocating arms control and disarmament during the currently strained period of relations with the United States would be largely ineffective. New Zealand's isolation might be viewed as a lesson to countries considering the nuclear-free road in what a superpower can do to a dissident ally.
- Although Wellington is generally unwilling to export antinuclearism, the New Zealand antinuclear stance is serving as a model for other countries. The recent military coup in Fiji, however, suggests that non-nuclear policies continue to challenge the status quo and arouse strong antagonism from the nuclear powers, especially France and the United States.

BECAUSE OF NEW ZEALAND'S close relationship with the United States, the Labour party believed that it would be possible to get Washington to respect the government's antinuclear desires and still remain in a fully operational alliance. In 1983, for example, the Labour party (then in opposition) discussed ways to place antinuclear conditions over relations with the United States. The party opted for a review of the ANZUS relationship coupled with a ban on nuclear-armed and -propelled warships and the urgent promotion of a South Pacific nuclear-weapons-free zone.

Kevin P. Clements is a senior lecturer in sociology at the University of Canterbury in Christchurch, New Zealand, and coauthor of Defence and Security: What New Zealanders Want *(1986).*

The former opposition leader, Bill Rowling (now New Zealand ambassador to Washington), argued in a 1983 memo: "It is most unlikely that the United States would end ANZUS as a result of Labour implementing its antinuclear policies. The United States would not want to be seen bullying a small ally on the sensitive nuclear issue." But the United States placed greater priority on its nuclear theology than on relationships with friends and sought to punish New Zealand as an object lesson to other strategically more important countries that might wish to impose such conditions on their relations with the United States.

When small allies like New Zealand challenge U.S. interests, retribution is swift.

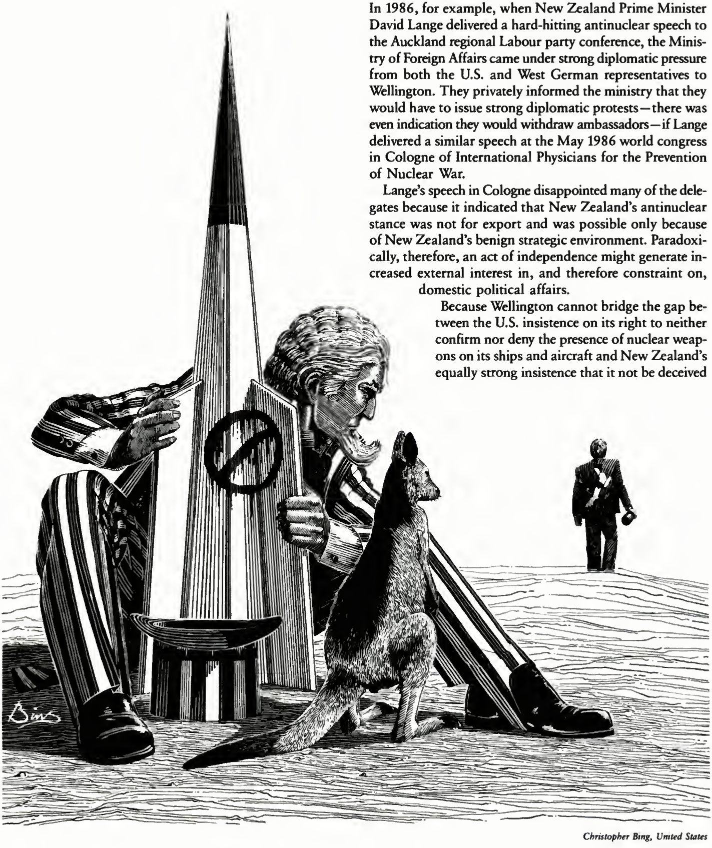
Wellington's non-nuclear stance strikes at the heart of U.S. strategic interests. In addition to worrying about the substance of the New Zealand objection, Washington was also worried by the method New Zealand used to declare its nuclear independence. The United States believes that allies should not take unilateral action on important strategic or economic questions but should sit down together, establish long-term objectives, and negotiate. New Zealand's swift action upset the United States because it was not consulted about the antinuclear stance nor given time to adjust to New Zealand's intentions. There is an element of blatant hypocrisy in this position, however, because the United States does not have a good record of consulting with allies on key questions either. During the Vietnam War, for example, although New Zealand and Australia dispatched small numbers of troops to join the United States as a mark of alliance solidarity, they were not consulted before key strategic or tactical decisions were made, such as bombing the North or invading Cambodia.

This is a privilege of being a superpower. Few states individually or in combination are in a position to exert determinate influence over either superpower. Relationships with them are inherently asymmetrical. When smaller allies, like New Zealand, appear to challenge U.S. interests, retribution is swift. Various U.S. members of Congress, for example, have called for trade sanctions against New Zealand. While these have not come about, they represent additional levers to use against more independent foreign policy directions.

In the broader diplomatic arena, actions that offend another country also compel the outside world to pay close attention to the domestic political processes of the offender. In 1986, for example, when New Zealand Prime Minister David Lange delivered a hard-hitting antinuclear speech to the Auckland regional Labour party conference, the Ministry of Foreign Affairs came under strong diplomatic pressure from both the U.S. and West German representatives to Wellington. They privately informed the ministry that they would have to issue strong diplomatic protests—there was even indication they would withdraw ambassadors—if Lange delivered a similar speech at the May 1986 world congress in Cologne of International Physicians for the Prevention of Nuclear War.

Lange's speech in Cologne disappointed many of the delegates because it indicated that New Zealand's antinuclear stance was not for export and was possible only because of New Zealand's benign strategic environment. Paradoxically, therefore, an act of independence might generate increased external interest in, and therefore constraint on, domestic political affairs.

Because Wellington cannot bridge the gap between the U.S. insistence on its right to neither confirm nor deny the presence of nuclear weapons on its ships and aircraft and New Zealand's equally strong insistence that it not be deceived



Christopher Bing, United States

on this question, the Labour government has spelled out some new directions in the 1987 New Zealand defense review. This review underlines the government's commitment to exclude nuclear weapons from New Zealand and formulates defense objectives primarily in terms of a domestic strategy buttressed with enhanced security relationships with the South Pacific and Australia. It underlines the value of New Zealand's continuing membership in ANZUS and the government's support for Western interests.

Since the United States suspended security obligations to New Zealand—a cause for some rejoicing in sections of the peace movement but a source of concern to the government—Wellington's link with Australia is in fact the only operational relationship enhancing New Zealand's defense. The Australian government, under pressure from Washington, initially tried to change New Zealand's antinuclear stance, but since January 1985 it has maintained two ANZUS defense relationships, one with the United States and the other with New Zealand.

While this has not been easy for Canberra and would almost certainly be more difficult if a conservative party gained office in Australia, it has meant that New Zealanders who want some form of conventional collective security arrangement are relatively happy. Although most who want a clear non-nuclear defense are satisfied with the Australia-New Zealand link, some feel a little uncomfortable about implicit support for U.S. nuclear strategy as demonstrated by the presence of U.S. bases in Australia.

THE UNITED STATES currently is biding its time regarding New Zealand. Washington undoubtedly hopes that the National party, which is conservative, will beat Labour in the election later this year, although recent polls favor the government. For while the National party has not indicated exactly where it would stand on port calls by nuclear-armed ships, it has indicated it would respect the neither-confirm-nor-deny policy and would restore the ANZUS relationship with the United States.

In the meantime, the United States Information Service has raised its profile in the country. The number of visiting U.S. government representatives, academics, and journalists has soared since Labour took power. Some sections of New Zealand's peace movement view these activities with concern because of U.S. interventions in other parts of the world. Others see these contacts as an opportunity to present New Zealand's case to key opinion leaders, hoping that sooner rather than later Washington will acknowledge the benefits of having an unequivocally non-nuclear ally and start reducing its own dependence on nuclear deterrence or its pursuit of an effective first-strike capability.

Yet public opinion in New Zealand remains overwhelmingly antinuclear. Ninety-two percent of the population opposes stationing nuclear weapons in New Zealand; 75 percent of the population opposes the right of any nation to test unarmed missiles in the Pacific; and nearly 70 percent wishes to maintain a ban on nuclear-armed or nuclear-powered ships porting in New Zealand. Seventy-three percent of the population wants New Zealand to rely unconditionally on a nuclear-free defense. Seventy-two percent also wants New Zealand to remain in alliances—66 percent wants an alliance with Australia and the United States.[1] New Zealanders clearly prefer to maintain an antinuclear stance within an alliance framework, which is something the United States will not countenance.

The U.S. reaction to New Zealand is therefore antagonistic to New Zealand's democratic preferences. This bemuses many New Zealanders. The country that claims to lead and represent the interests of the free world cannot acknowledge and affirm the democratic choices of one of its closest allies unless these confirm the dominant views of the U.S. administration. New Zealanders perceive this as implicitly disrespectful of their sovereignty.

IN RECENT WEEKS, national attention has focused on Harewood, the U.S. Naval Support Force base in Christchurch. This base services the United States National Science Foundation (NSF) "Deep Freeze" operations in Antarctica. The base makes a significant contribution to the local economy, with estimates varying from between $12 million flowing directly into the economy and up to $50 million in spin-off contributions, and it is critical to New Zealand's own Antarctic operations. Peace groups have for years called for its demilitarization. These groups were a little surprised recently to discover that, for more punitive reasons, John Lehman, the retired secretary of the U.S. Navy, and Richard Perle, the former assistant defense secretary, had called for studies on the removal of the base. For largely material reasons the government of Tasmania, Australia, lobbied the NSF and Pentagon to move the Christchurch base to Hobart, citing New Zealand's antinuclear stance as a possible impediment to future Deep Freeze activities.

In fact the New Zealand government makes an exception to its antinuclear stance regarding the Deep Freeze project. It has given blanket clearance to all U.S. aircraft using the base if they are en route to Antarctica because the 1959 Antarctica Treaty prevents any party from taking nuclear weapons to the ice. A complication is that not all flights using the base go to the Antarctic. Indeed, Harewood is part of the Military Airlift Command milk run that goes from Honolulu to American Samoa and then on to Australia. These flights could be carrying nuclear weapons, although that is highly unlikely because they never have armed guards or any obvious security in place. If the flights were carrying nuclear weapons, they would certainly infringe on New Zealand's proposed antinuclear legislation.

It is just such a possibility that has spurred some peace groups to insist that the government demilitarize the naval support for Deep Freeze or, alternatively, close the base down. In recent weeks the opposition National party has highlighted this apparent anomaly in the government's antinuclear stance in an attempt to embarrass the government. The U.S. embassy publicly claims that it has no evidence, despite the statements from Lehman and Perle, that the base will be closed down or moved. It would be extraordinarily time consuming and expensive to do either. The U.S. ambassador, however, adds that if it appears that the New Zealand government is breaching neither-confirm-nor-deny policy in relation to Harewood, the United States might consider removing the base.

Some see evidence of U.S. covert mischief in the dispute since it brings together the National party, some peace groups, and retired but formerly influential spokesmen in the U.S. administration. All have their own interests in embarrassing the government. Some peace groups, for instance, want to get rid of any U.S. military presence in New Zealand. Formerly influential sections of the U.S. administration realize that Harewood could be used as an economic lever against the New Zealand government, and the National party in an election year wishes to undercut the moral high ground gained by Labour on the antinuclear issue.

The NSF has given assurances that the base will remain in Christchurch. The deputy prime minister of New Zealand, Geoffrey Palmer, said he would oppose any plan to shift the base, which has been part of Christchurch for many years. He went on to say: "Mr. Lehman has been making these remarks for so long that he is beginning to sound like a broken record." And the most recent statement from the U.S. embassy denied any intent to move the base but indicated that the Defense Department has "contingency studies for virtually every contingency which might occur."[2]

Other antinuclear nations are willing to be deceived some of the time. New Zealand insists on never being deceived.

Prime Minister Lange said in April that people using or wanting to use Christchurch airport know that New Zealand has a non-nuclear policy, and that raising questions about nuclear weapons passing through the airport raises problems for the United States and its neither-confirm-nor deny policy, not for New Zealand. Specific notes between the United States and New Zealand cover Antarctic flights principally, Lange said, and permission must be granted for non-Antarctic flights. Since these involve civilian personnel loading and unloading the planes, they are cleared. The prime minister indicated that the leader of the National party, James Bolger, was making the Deep Freeze base vulnerable by pursuing the wrangle. This contretemps makes it apparent that the dispute between the United States and New Zealand is not over and that the National party is trying to make a political issue out of it.

Internationally, New Zealand continues to be criticized by U.S. officials. One of the most recent was Richard Armitage, the assistant secretary of defense, who charged that New Zealand's actions had damaged the Western alliance.[3] This accusation provoked another vigorous response from Lange, who indicated very clearly that it was from "nuclear weapons and not the Western alliance" that New Zealand had withdrawn. He argued that Armitage's accusation was a significant misrepresentation of New Zealand's position. New Zealand stood and stands ready to play a greater role in meeting the security needs of the Southwest Pacific and furthering the common interests it shares with the United States and other Western nations.[4] Lange, discussing the natural friendship between the United States and New Zealand, said New Zealand sought to further all that is good and positive in the relationship.

WHILE SOUTH PACIFIC island countries were sympathetic to the nuclear-free-zone proposals, not all supported New Zealand's unilateral antinuclear gesture. Tonga, the Cook Islands, Samoa, and Fiji, for example, did not provide any particular support for the policies at the time they were issued. Only Vanuatu and the Solomon Islands were publicly sympathetic.

Thus, another consequence of unilateral action against a superpower is the spillover effect on other bilateral relationships dependent on that particular power. Fiji, for example, reversed its earlier ship ban in 1983 and welcomed U.S. ships—a decision undoubtedly helped by a no-strings aid grant from the United States. The recent elections in Fiji returned a government committed to a more nonaligned antinuclear foreign policy than the Alliance party of Sir Ratu Kamisese Mara. The winning coalition National Federation–Labour party of Dr. Timoci Bavadra, however, was overthrown in a military coup. This precipitated a constitutional crisis. The coup followed a visit from Vernon Walters, U.S. ambassador to the United Nations, who had expressed U.S. concern over the government's antinuclear stance and hope that some accommodation could be found.

Unfortunately, New Zealand has not received official support from other more influential countries. Indeed, countries viewed as possible models for New Zealand, such as Sweden or Ireland, do not have unconditional ship or aircraft bans. These countries and others, Denmark and Norway for example, are willing to be deceived some of the time by the United States. New Zealand insists that it does not wish to be deceived any of the time. Being out of line with friends and allies is probably one of the most difficult aspects of pursuing unilateral arms control initiatives, even if they are linked to regional arrangements and have been pursued as sensitively as possible with allies.

Despite the costs of its antinuclear stance, however, New Zealand's unilateral contribution to non-nuclear global security will have been worthwhile if other governments and peoples on both sides of the East-West divide also dare to imagine a non-nuclear future and act on these beliefs. ☐

---

1. *Defence and Security: What New Zealanders Want,* Report of Defence Committee of Enquiry (Wellington: Government Printer, 1986), p. 42.
2. *Christchurch Press,* April 4, 1987.
3. *Christchurch Press,* April 21, 1987.
4. David Lange, *Press,* April 1, 1987.

The genesis of New Zealand's ban

Party politics, a well-timed peace movement, and the advantages of New Zealand's relative isolation converged to turn antinuclear sentiments into a law. But a clear non-nuclear defense policy has yet to be developed.

by Jason Salzman

WHEN NEW ZEALAND'S Labour party refused to allow the U.S.S. *Buchanan*, a ship capable of carrying nuclear weapons, to enter Auckland harbor in February 1985, it put into effect a "nuclear free" policy that had been evolving within the party for at least 12 years before the election that brought it to power in 1984. Endorsed by three of four major political parties in New Zealand, the proposal to ban nuclear-powered and nuclear-armed ships was backed by an independent and broad-based domestic antinuclear movement that mobilized significant public support during the three years leading to the election. When it entered office, Labour's mandate for banning nuclear warships from New Zealand's ports was clear: polls showed that about 70 percent of the public backed the ban.

Now, however, both public support for the antinuclear policy and to some extent Labour's relations with the antinuclear movement are being strained by disagreements about the importance of Wellington's alliance with the United States.

Before and after the 1984 election, New Zealand Prime Minister David Lange assured New Zealanders that the United States would accept their country as a non-nuclear member of the ANZUS (Australia, New Zealand, United States) alliance. Polls showed then, as they do now, that about 70 percent of the 3.2 million New Zealanders supported ANZUS. But Lange's attempt to give the people what they wanted—non-nuclear defense ties with the United States—was scuttled by the United States. In June 1986 the Reagan administration declared that, as a result of the port ban, the United States would no longer consider defending New Zealand under ANZUS. Although the 35-year-old treaty still exists technically since no party has withdrawn from it, Wellington has officially been demoted from a "close ally" to a "friend" of the United States.

Secretary of State George Shultz has said Washington hopes that with the ANZUS framework in place Wellington will eventually decide to alter its nuclear policies, restoring the alliance to the pre-ship-ban status. In other words, the Reagan administration has left ANZUS in place as an incentive for Wellington to reverse its antinuclear stand. This action has forced New Zealanders to choose between being a U.S. ally and maintaining their antinuclear policy, and polls show that the public is about evenly split on which should be sacrificed.[1]

Antinuclear protests, such as this 1984 effort to keep the submarine Queenfish out of Auckland Harbor, have been part of the New Zealand political scene since 1976. Although the flotillas did not succeed in keeping a U.S. vessel out of port, they did attract considerable media attention worldwide. *Courtesy AP/Wideworld Photo*

In an effort to pacify the security concerns of some New Zealanders, Labour increased the military budget and promised to strengthen regional alliances. Lange emphasizes that he still considers New Zealand part of the Western alliance and that New Zealand remains in ANZUS.

The Labour party leadership's reluctance to renounce ANZUS, despite some opposition to the treaty from within the party, has dismayed leaders of the New Zealand antinuclear movement. "The duplicity in the polls was produced by Lange because he advocated both [the ship ban and ANZUS]," said Bob Leonard, a prominent activist and spokesperson for Citizens for the Demilitarization of Harewood in Christchurch, in an interview. "The government should not have led the people to believe that they could have both."

Larry Ross, director of the New Zealand Nuclear Free Zone Committee, another national organization that helps organize many grass-roots actions, argued in a recent interview that by remaining in ANZUS New Zealand undermines its nuclear-free policies, given the central role nuclear weapons play in U.S. military operations and strategy. Ross believes that New Zealand should declare itself a "positive neutral," either armed or unarmed like Switzerland or Sweden, and should offer services such as trading or banking that are of value to all nations. Other defense policies forwarded by sections of New Zealand's antinuclear movement include civilian-based defense, nonalignment, and

Jason Salzman is a Denver-based freelance writer who recently was in New Zealand to study the antinuclear movement under a fellowship from Brown University.

regional alignment outside of ANZUS. But alternative proposals have little backing among New Zealanders who do support Wellington's alliance with Australia.

DESPITE DISAGREEMENTS with the antinuclear movement about how Wellington should conduct foreign policy in the future, Labour remains committed to its ship ban. Labour espoused antinuclear positions well before the grass-roots antinuclear movement took hold in the early 1980s. The party developed its first antinuclear policies in the mid-1950s in response to British and U.S. nuclear weapons tests in the Southwest and Central Pacific. French nuclear weapons tests at the Mururoa and Fangataufa atolls in French Polynesia, northeast of New Zealand, have been criticized by Labour and other political parties in New Zealand since France moved its nuclear test site from Algeria to the South Pacific in 1966. When Labour formerly held power, from 1972 to 1975, it dispatched a naval frigate carrying Cabinet Minister Frazer Coleman, who currently is minister of works and development, to protest and monitor the explosions at Mururoa. Greenpeace also sent protest boats from New Zealand. Joined by Australia, the Labour government successfully petitioned the International Court of Justice in 1974 for an injunction against the French tests, which were spewing radioactive fallout in the area. Although France disregarded the ruling, it announced soon afterward that it would conduct future tests underground.

Foreshadowing its 1984 nuclear-ship ban, Labour also refused to grant port access to nuclear-*powered* vessels during its previous term. This ban was actually initiated by the conservative National government in 1969 after it discovered that the United States had no legislation compensating victims of accidents involving the nuclear-powered propulsion systems of such ships while they ported abroad. The ban was extended by the Labour government even after the U.S. Congress passed indemnification legislation in 1974. The Nixon and Ford administrations put pressure on Wellington to lift the ban after the legislation was passed, but although there were "sharp exchanges behind the scenes," according to Bill Rowling, New Zealand's ambassador to the United States, the issue was never raised publicly by Washington as it is now. Rowling, a former Labour prime minister, added in a June 1986 interview that although the ban affected only nuclear-powered ships, not those capable of carrying nuclear weapons, the thinking within the governing Labour party was "much more against armaments than against propulsion." When Labour lost power in 1975, the new National government reversed the policy and nuclear-powered ships began visiting New Zealand again in 1976.

During the eight years that Labour was out of power, from 1976 to 1984, it strengthened its antinuclear positions. Labour's planks for the 1978, 1981, and 1984 elections show a growing opposition to visits by nuclear-armed and nuclear-powered ships and planes. Labour's 1978 election manifesto asserts that if elected the party would "close New Zealand's ports and airports to all nuclear-powered and nuclear weapon-carrying craft." The subsequent manifesto, on which it won election, is significantly stronger, stating that Labour would "legislate to make New Zealand and its territorial waters nuclear free" and that the United States must recognize "New Zealand's unconditional antinuclear stance." Although the 1984 manifesto states that Labour will "renegotiate the terms" of ANZUS, the party's parliamentary leadership remained committed to the treaty in view of public support for it.

Labour's strongly worded 1984 position emerged after a three-year period during which New Zealand's grass-roots nuclear-free movement burgeoned. But even though Labour promised to enact the movement's primary demand—to make New Zealand nuclear free—the movement persistently maintained its independence from the party.

"If we get behind one political party, we become domesticated," said Ray Galvin, author of four books on theological and peace issues and a leading antinuclear activist in New Zealand, in an interview last fall. "By making the parties compete for our votes in the 1984 election, we were able to use our political power most effectively."[4]

Indeed, although one Labour member of Parliament, Richard Northey, who was elected in 1984, is the former president of the Campaign for Nuclear Disarmament in New Zealand, Labour politicians have generally not taken leadership roles in the antinuclear movement. Several notable Labour parliamentarians have joined demonstrations organized by antinuclear groups over the years, but they are the exceptions. Ambassador Rowling, who has supported antinuclear positions within the party for years, makes a point of saying that Labour is distinct from the peace movement.

THE TACTICS used by New Zealand's peace movement reflect the ways the arms race reaches the country. With no major U.S. military bases or support facilities (Harewood mainly supports Antarctic expeditions and it is uncertain whether nuclear weapons or components pass through the base), no uranium mining, and no nuclear weapons deployed on its territory, New Zealand was most visibly linked to the nuclear arms race by occasional visits from U.S. nuclear-armed warships. An average of four U.S. naval ships have visited New Zealand annually since 1976, including nine that were nuclear powered.

In a series of protests initiated in 1976 by the Reverend George Armstrong, a professor at St. John's College in Auckland, demonstrators boarded sailboats, surfboards, and kayaks and surrounded nuclear ships as they entered ports in Auckland and Wellington, New Zealand's largest cities. Following a strategy he had seen tried in Philadelphia, Armstrong hoped that so many small boats would crowd the harbor that the nuclear ships would find it impossible to enter. In subsequent demonstrations U.S. and British ships were attacked with smoke bombs, splashed with paint, rammed by small vessels, and, to the delight of demonstrators, forced to stop on a number of occasions

GREAT ARTICLES. SURPRISING SOURCE.

Bulletin of the Atomic Scientists
Overcoming Nuclear Fear
Pork Barrel in the Sky
Managing the Weapons Labs
World Populati
The U.S. Military
Scientists, Human Rights, a
AFRICA
Food and Security
Non-Proliferation Treaty Review
U.S. Coverup of Nazi Scientists
Threats to ABM Treaty
Reshaping NATO Policy

"Best investigative story in a magazine, 1985," awarded by Investigative Reporters and Editors, Inc.

But no surprise if you've been reading the *Bulletin of the Atomic Scientists*. You've been getting more than Linda Hunt's award-winning story on how U.S. officials doctored records to get Nazi scientists into the United States – and into our weapons labs. You've been reading:

> **"Reagan fits the public mood like a comfortable glove, combining nostalgia for the barrel-chested 1950s with the hallmark of the 1980s: the whimsical pursuit of recreational shopping."**
>
> –"Ronald Reagan's Hidden Hands," May 1986

> *"As Administration pressure increases, scientists must remember that we entered our field to advance knowledge–not to make a living by selling quack nostrums, particularly lethal ones, to a frightened public."*
>
> –"Taking the Pledge against Star Wars," January 1986.

Join us each month behind the scenes of national policy-making as we demystify science and technology while examining the arms race, secrecy and censorship, U.S.-Soviet relations, and other issues of global concern. We're current, authoritative, and written in clear, lively prose, not technical jargon. So send for a free issue to start a trial subscription. You'll be surprised each month.

YES, send me a free issue of the *Bulletin* to start a trial subscription. I'll pay an introductory rate of $15 for ten issues (outside the United States, $22.50).

☐ Payment enclosed. ☐ Please bill me later.

NAME

ADDRESS

CITY STATE ZIP

Mail coupon to *Bulletin* subscription office, 5801 S. Kenwood, Chicago IL 60637. 7C6

Bulletin of the Atomic Scientists
We tell the world what time it is.

The *Bulletin* clock, symbol of the dangers and challenges of the nuclear age, stands at three minutes to midnight.

despite efforts by police in helicopters and speedboats to protect them. Such David and Goliath images were spread around the country and world by the media, focusing public attention on New Zealand's involvement in the arms race. The infrequency of the visits actually worked in favor of the peace movement because a special event could be made of each port call.

Unions in New Zealand, led by sympathetic executives like New Zealand Federation of Labour President Jim Knox, increased the visibility and support base of the antinuclear movement. Waterfront and maritime unions, endorsed by the federation, which represents 80 percent of the country's organized workforce, shut down ports when some nuclear-powered and nuclear-capable ships were present. Repeated strikes stopped ferries from crossing Cook Strait, which separates New Zealand's two major islands. (It bears mention that unions in New Zealand have a history of supporting antiwar and antinuclear causes. In 1973, for example, a trade union boycott against France was so effective that not even a letter could get through.)

Port calls by British and U.S. nuclear ships before the 1984 election brought record numbers of people to the streets. The largest of these demonstrations occurred in 1983 when the U.S.S. *Texas* came to New Zealand during Hiroshima week. At least 35,000 people marched in Auckland, a turnout comparable to more than two million marchers in the United States.

Many local council members for the first time in their lives rather than debating potholes were debating the fate of the earth in their local communities.

Another action organized before Labour's 1984 victory shows the depth of support for the antinuclear movement. Beginning in 1981, peace groups throughout New Zealand lobbied city and county councils to declare their districts nuclear-free zones. Activists presented councillors with petitions that were in many cases signed by more than 50 percent of the local residents. Although considered conservative bodies in New Zealand, local councils representing 59 percent of New Zealand's constituents declared their districts nuclear free before the election. Labour politicians drew attention to this figure to help justify their antinuclear position during the campaign, and later Lange invoked it to show U.S. officials that Labour was under public pressure to keep nuclear ships out of New Zealand.

"Nuclear-free zones are the genuine expression of the will of people in the local community," says Ross of the Nuclear Free Zone Committee. "The fact that they are symbolic does not reduce their significance because the bomb itself is symbolic—of power. The nuclear-free-zone declaration is symbolic of people power. The real beauty of this was that many councillors for the first time in their lives, rather than just debating potholes, were debating the fate of the earth in their local communities."

The council declarations generated widespread local media coverage, particularly since many councils voted on the measure two or three times before passing it. The local nuclear-free-zone campaign provided a focus for and facilitated the growth of small peace groups throughout New Zealand. Today 72 percent of New Zealanders live in locally declared nuclear-free zones—a world record.

The antinuclear movement's nonpartisan stance was bolstered by the New Zealand chapter of the International Physicians for the Prevention of Nuclear War (IPPNW), which 20 percent of the country's doctors supported by 1984. When IPPNW was formed in New Zealand in 1982 it did not take a position on the alliance issue, but at its annual conference in 1986 the organization decided that since ANZUS is a "nuclear alliance," New Zealand "should not be in it," according to Dr. Ian Prior, IPPNW's spokesman.

AS THE 1984 ELECTION approached, it became clear that public opinion on the nuclear warship issue was changing. Polls showed that 60 to 70 percent of the population supported a ship ban, up from roughly 30 percent in 1978. Public support for ANZUS remained at least as high. So public opinion was precisely in line with Labour's nonnuclear ANZUS position, which the party had been advocating in election manifestos since 1978.

With the grass-roots antinuclear movement in full swing during the campaign, Lange asserted that Labour's nuclear policy would not be negotiable. After first resisting requests from peace groups that it should pledge to legislate the nuclear-ship ban, Labour finally agreed in April 1984 to do so. Two smaller opposition parties, Social Credit and the New Zealand party, endorsed nuclear-free and neutral or nonaligned stands. The anti-ANZUS positions of the smaller parties, which took 22 percent of the vote, made Labour's policy appear moderate. The position of the New Zealand party, dominated by moneyed groups and led by Robert Jones, a prominent businessman, was that all defense forces were a waste of money. This view gave antinuclearism a new legitimacy. Only the governing National party took the position that nuclear ships should be allowed to visit the country.

Labour's 17-seat victory in the 1984 election for the 95-seat unicameral Parliament can be attributed in part to public sentiment about the nuclear issue. National was also hurt by rising unemployment and other economic difficulties as well as the sagging personal popularity of National party Prime Minister Robert Muldoon. Furthermore, Lange denied Muldoon's warnings that the nuclear-ship ban would mean an end to ANZUS. With peace groups backing nuclear-free candidates, 64 percent of the vote went to parties endorsing the ban.

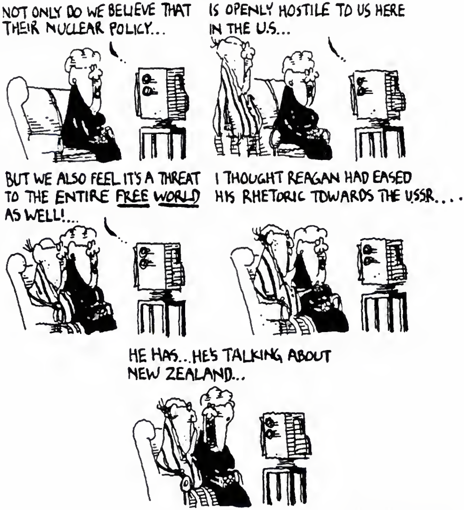
ANZUS and the antinuclear issues will surely surface again in the next election, to take place before mid-September. Labour, which continues to appeal to the widespread antinuclear sentiments in New Zealand, has promised to pass legislation before the next election prohibiting ships or planes from entering New Zealand's ports or airports unless the prime minister is satisfied that they are not carrying nuclear weapons. Muldoon, who is currently National's spokesman on foreign affairs issues, has dubbed this bill the "ANZUS termination" bill. Appealing to the pro-ANZUS sentiment among New Zealanders, National maintains its support for ANZUS and for what it sees as New Zealand's obligation to allow port calls by U.S. ships under the terms of the treaty.

Politicians from both parties, however, believe that the state of the economy will be the deciding factor in this campaign, and it remains to be seen whether Labour's free-market economic policies will revive the economy. Worries about trade repercussions resulting from the ANZUS dispute —which would be devastating to New Zealand's export-oriented economy—have so far proven unfounded.

IT IS NOT SURPRISING that New Zealand was the first U.S. treaty ally to pose a serious challenge to the U.S. policy of neither confirming nor denying the presence of nuclear weapons on its vessels. New Zealand has certain unique advantages: it has no major U.S. military facilities, so few New Zealand jobs depend on the U.S. military; it has a small, politically active population, which makes antinuclear activism—reaching the media, educating the public, networking, pressuring politicians—easier; the level of public concern about the Soviet military and the threat of invasion is low;[2] it is a member of an alliance (ANZUS) that is not militarily integrated under a standing unified command structure; and it is geographically located in a region that is ideologically unified. Given these conditions, activists could band together to oppose and exploit ship visits, while the wider public was mobilized and educated through an extensive local nuclear-free-zone campaign. The movement peaked just before the 1984 election, and thus exerted maximum political impact (unlike the freeze movement in the United States). And it appealed to a political party that had advocated antinuclear positions in the past.

New Zealand's experience with the nuclear-ship ban underscores the necessity of recognizing that antinuclearism does not constitute a defense policy. New Zealand's peace movement succeeded in mobilizing public support for the ban, but it has failed to persuade the public that an alternative defense and security policy could replace ANZUS. In deference to public support for ANZUS and to popular anxiety about the nuclear arms race, Labour put antinuclear conditions—the ban—on Wellington's alliance relationship with the United States. These conditions proved unacceptable to the Reagan administration, and the resulting dispute generated a partial public backlash against Labour's policy. It remains to be seen how serious this backlash is.

The lesson for peace movements in other allied countries and in the United States is clear: antinuclear campaigns should challenge the traditional military conception of national security. They should address popular concerns about military security and promote alternative security options so that the public is not left dangling in a void of insecurity when the nuclear rug—and perhaps the alliance along with it—is pulled out. Generating such a debate in today's public climate of theatrical politics and correspondent theatrical protest is no easy task. ☐


NOT ONLY DO WE BELIEVE THAT THEIR NUCLEAR POLICY...
IS OPENLY HOSTILE TO US HERE IN THE U.S...
BUT WE ALSO FEEL IT'S A THREAT TO THE ENTIRE FREE WORLD AS WELL!...
I THOUGHT REAGAN HAD EASED HIS RHETORIC TOWARDS THE USSR....
HE HAS...HE'S TALKING ABOUT NEW ZEALAND...

© *Christian, United States*

---

[1] *Defence and Security: What New Zealanders Want*, Report of Defence Committee of Enquiry (Wellington, New Zealand: Government Printer, 1986), p. 73; Dora Alves, *Antinuclear Attitudes in New Zealand and Australia* (Washington, D.C.: National Defense University Press, 1985), p. 74.

[2] *Defence and Security*, p. 40.

Star Wars controversy in West Germany

The Reagan administration's selling of Star Wars in Europe has sharpened West German political divisions and has placed U.S. foreign policy behavior —especially arms control compliance and progress—on the line.

by Thomas Risse-Kappen

WHEN THE REAGAN administration attempted in February 1987 to convince its European allies that a new, broader interpretation of the Anti-Ballistic Missile Treaty was valid, the argument fell on unsympathetic ears. The new interpretation, which the administration apparently considers vital to continued research on the Strategic Defense Initiative, received a chilly reception in the Federal Republic of Germany. In a March 18 government declaration, West German Chancellor Helmut Kohl reaffirmed his stance that "drastic reductions of offensive weapons must influence the necessity and size of defensive systems." Kohl's position is the opposite of the Reagan administration's assertion that reductions in offensive forces enhance the prospects of cost-effective missile defenses.

The administration, presumably, was not surprised by European rebuttal of its effort to clear a path through the ABM Treaty to permit greater latitude in testing space weapons and exotic technologies. Opposition to Reagan's Star Wars concept occupies a substantial portion of the German political spectrum and extends to the public, which overwhelmingly rejects SDI as well as various agreements Bonn has made with the United States on the project. According to an opinion poll published in February 1987, 58 percent of the German people reject any participation by the Federal Republic in SDI. This is the highest degree of anti–Star Wars sentiment anywhere in Western Europe. In Britain, for example, 48 percent of the people polled reject SDI; in Italy, the figure is 46 percent; and in France, 35 percent disapprove of participating in SDI.[1]

There is not much enthusiasm for SDI in West Germany. Support comes from a fragile coalition of true believers and skeptics whose credibility depends on U.S. moves.

Such low esteem for SDI and for redefining the ABM Treaty has been simmering in Europe for five years. Star Wars would not have been an issue in the public debate without the quarrels about the deployment of cruise and Pershing II missiles in Western Europe in 1983. Bonn, in particular, can recall when that deployment generated the largest public protests in West German history. On top of this fractious period, Reagan's Star Wars speech in March 1983, which denounced deterrence as morally doubtful, dangerous, and destabilizing, came at a time when European supporters of deterrence were experiencing serious credibility crises. But the German government did not savor the idea of appearing anti-American on yet another issue and throughout 1984 attempted to avoid making an official statement on SDI. As official and public debate brewed in 1985, however, three major groups emerged and took positions on space defenses and their implications: the true believers, the skeptical atlanticists, and the opponents.

TRUE BELIEVERS in SDI are and will remain a minority. They tend to be in the Bavarian Christian Social Union with Franz Josef Strauss; in the defense caucus of the Christian Democratic Bundestag faction; and in the top decision-making level of the defense ministry. True believers regard SDI as a possible way to overcome the present system of deterrence. At least, they argue, peace might be more secure with a mix of offensive and defensive weapons. They are genuinely worried about Soviet activities in space-based defenses, and they grant that for reasons of balance alone the United States will have to engage in comparable efforts.

In addition, West German supporters advocate a European version of the U.S. program, and some even call for a European Defense Initiative in order to avoid European decoupling from the United States. While almost nobody thinks in terms of creating a leak-proof European defense against all Soviet short- and intermediate-range and cruise missiles, those demanding a European SDI do generally favor defending specific military targets. Defense Minister Manfred Wörner, on the other hand, rejects the idea of a European Defense Initiative for political reasons and instead favors a concept called "extended air defense." He and others are concerned about a looming Soviet non-nuclear ballistic missile threat against important NATO targets, which may emerge by the early 1990s. By then, Soviet SS-21, SS-12, and SS-23 missiles could be accurate enough to deliver conventional warheads to a military target and destroy or disable it. Antitactical ballistic missiles (ATBMs), which will intercept the Soviet missiles, are the preferred counter. In the short term, Wörner advocates upgrading current NATO air-defense systems, while in the long run he advocates implementing SDI technologies in ATBMs so they can engage even nuclear missiles.

The skeptical atlanticists consist of the mainstream Christian Democrats, Christian Democrat foreign policy spokes-

Thomas Risse-Kappen is a research associate at the Peace Research Institute in Frankfurt, West Germany.

men, people at the chancellery, and Chancellor Kohl. They try to bridge conflicting concerns, for while they seriously doubt that SDI has defense and arms control benefits, they have little desire to criticize U.S. defense policy, fearing a weakening of alliance cohesion. On the one hand they worry that European security will be decoupled from the United States, that the doctrine of flexible response will have to be changed, and that the significance of the numerically unequal conventional military balance in Europe will increase. SDI, in their view, threatens their arms control and détente philosophy. In that respect, this group shares the convictions of German SDI opponents. On the other hand, their primary security objective is alliance cohesion, and the lesson they draw from the medium-range missile affair is that open objections to U.S. policy should be avoided to prevent Moscow from exploiting differences within NATO.

Thus, the skeptical atlanticists support SDI as a *research* program within the limits of the traditional interpretation of the ABM Treaty, the loophole being that they plead for "cooperative solutions" and call for a transition to strategic defenses within an arms control framework encompassing reductions in offensive missiles and agreements on limited ballistic missile defense deployment. "Cooperative solutions" is the magic formula that resolves the conflict between atlanticism and the concerns about the future of stability and arms control.

SDI opponents range from the Free Democratic Party to the Social Democrats, the Greens, and the peace movements. But the opponents of SDI are not necessarily the same people who opposed putting medium-range missiles in Europe. The Free Democrats, for example, supported INF deployment. And the foreign ministry under Hans Dietrich Genscher, which also supported INF deployment, worries that SDI may adversely affect the whole basis of East-West relations, the chances for a new period of détente, and the foundations of deterrence doctrine.

The Social Democrats, while opposing SDI, profess agreement with a number of assumptions behind President Reagan's approach: they concur that there is a need to overcome the strategy of mutual annihilation with a strategy of mutual security, and they also believe that conventional weapons have to replace nuclear weapons. Where they disagree is on the solutions offered. Social Democrats prefer the political solution of an expanded *Ostpolitik* to a new military-technological initiative. They do not believe that SDI could be integrated into an arms control regime, and this suspicion is confirmed so far by the U.S. negotiating position in Geneva. Instead, in the eyes of the Social Democrats, Star Wars could spell the end of the ABM Treaty, stimulate more arms races between offensive and defensive systems, and pose new threats to crisis stability.

IN CONTRAST TO THIS factional SDI debate among the parties and interests, which gained momentum and culminated in a public hearing at the Bundestag, the West German government came to its decisions after a long tug-of-war. Throughout 1985, there was heavy bureaucratic infighting among supporters at the defense ministry, atlanticist skeptics at the chancellery, and opponents at the foreign ministry over whether to cooperate or participate in SDI and how any decision on the matter would be executed. The first

Preserve and protect your *Bulletin* copies

Choose the attractive and durable library files or binders, both bound in blue simulated leather with the famous *Bulletin* clock and logo stamped in gold leaf.

Mail your order to: *Bulletin of the Atomic Scientists*, Jesse Jones Industries, Dept. BAS, 499 East Erie Avenue, Philadelphia, Penn. 19134.

Please send me ________ *Bulletin* binders ________ *Bulletin* files

I enclose my check for $________ (U.S. currency only)

Name

Address

City State Zip

Toll Free Number (charge orders only): 1-800-972-5858

Note: Satisfaction guaranteed.

Pennsylvania residents add 6% sales tax.

Cases: Hold 12 issues. $7.95 each; three for $21.95; six for $39.95.

Binders: Hold 12 issues. Magazines open flat. $9.95 each; three for $27.95; six for $52.95.

Add $1 per unit for postage and handling, $2.50 outside the United States. (U.S. funds only)

Charge my (minimum $15):

☐ Visa ☐ American Express ☐ MasterCard ☐ Diners Club

Card # ________ Exp. Date ________

Interbank ________ Exp. Date ________

Signature ________

decision, made in the spring of 1985, resulted in criteria for assessing the security effects of SDI. Supporters and atlanticists compromised here, offering political support for SDI as a research program provided it remained within the limits of the ABM Treaty as traditionally interpreted. The position paper that emerged from the decision and compromise stated that final German judgment on SDI as a security issue would be made in light of SDI's effects on the credibility of U.S. nuclear defense for West Germany, on the viability of flexible response, and on disparities in the European nuclear and conventional military balance. Parallel to these criteria, additional arms control conditions worked out between the chancellery and the foreign ministry stipulated that SDI would have to be consistent with:

- continuing the priority of preventing war;
- preserving the high and unacceptable risk for any first strike;
- maintaining a force equilibrium and renouncing superiority;
- not using new technologies to destabilize the military balance;
- preventing an arms race in space;
- searching for cooperative solutions before deploying weapons.

But the compromise did not hold up for long. Conflict continued with vigor during the fall of 1985, focused now on whether or not to seek official participation in SDI. At the end of the year, a new compromise was reached: supporters and atlanticists decided, against the views of the foreign ministry, that Germany would seek some kind of formal arrangement with the U.S. government on SDI. Opponents and atlanticists decided, against the views at the defense ministry (and the Bavarian Christian Social Union), that this agreement should be kept at the lowest possible political level. The government played down the political importance of the whole issue and tried to make it largely a question of economic policy. Finally, on March 27, 1986, the government signed two agreements dealing with the transfer of technology and the participation of German business in SDI.[2] Thus, the U.S. government got what it needed: political support for SDI by one of its major allies, which it could use in the U.S. domestic debate. Chancellor Kohl tried to reach the stars of Star Wars, but instead muddled through incompatible defense, arms control, and economic goals.

In the meantime, enthusiasm for the economic benefits of SDI has withered, although a West German armament company, Messerschmitt-Bölkow-Blohm, has gotten more SDI funds than any other non-U.S. company and is one of the main contractors for "theater defense architecture studies." The debate today, however, concentrates again on the security aspects of SDI, in particular the future of the ABM Treaty.

The Kohl government adheres for the time being to the traditional interpretation of the ABM Treaty and continues to urge the U.S. administration to do the same. When the United States first tried to change its interpretation of the treaty in October 1985, it was Foreign Minister Genscher who, together with his West European colleagues, put heavy pressure on Secretary of State George Shultz not to invalidate the treaty. At that time NATO succeeded. Bonn also resisted new attempts by the U.S. administration to get SDI beyond the constraints posed by the treaty.

SDI DID NOTHING but pour oil on the fire of domestic debate in West Germany. While President Reagan's vision impugned the credibility of those who try to justify nuclear deterrence, it obviously did not meet the demands of those Germans who—like Reagan—want to render nuclear weapons impotent and obsolete. They see SDI as another military solution to what are essentially political problems that threaten to lead the world into new dimensions of the arms race. German proponents of nuclear disarmament, influenced by the ecological and "limits to growth" debate, tend to view SDI as a technical fix that will generate mutually enforced insecurity rather than mutually assured survival. Reagan's vision of overcoming deterrence with technology is regarded as another example of American hubris, of seeking unilateralist answers to the challenge of creating common security. Within these sectors of the German public, SDI heightens existing anti-American sentiments.

On the other hand, SDI does not help the atlanticists and NATO true believers regain the ground they lost in the domestic debate. Deploying comprehensive U.S. and Soviet ballistic missile defenses may well threaten the basis of extended deterrence and flexible response. At the same time, SDI reduces public support for these requirements insofar as it is perceived as an obstacle to arms control and détente.

There is not much enthusiasm for SDI in West Germany. Support comes from a fragile coalition of true believers and atlanticist skeptics whose credibility depends heavily on U.S. foreign policy behavior, especially regarding the future of the Geneva negotiations and the ABM Treaty.

Whether and how a U.S.-Soviet deal on intermediate-range missiles might affect the West German debate over SDI is unclear. On the one hand, a zero solution for both longer-range and shorter-range INF will almost certainly reduce West European demands for antitactical ballistic missiles as a complement to strategic defenses. Such a deal would in fact eliminate the nuclear and non-nuclear threat against which ATBMs are supposed to defend, and U.S. efforts to sell ATBMs to Europe will therefore lose ground. On the other hand, a separate INF agreement might well reduce public attentiveness toward SDI and the ABM Treaty. While the West Germans will celebrate an INF treaty as a historic event in nuclear arms control—and they are right to do so—they might overlook the fact that the price to be paid for this agreement may be unconstrained U.S.-Soviet competition in strategic offensive and defensive weapons. ☐

---

1. "Mehrheit in der Bundesrepublik gegen SDI," *Frankfurter Allgemeine Zeitung*, Feb. 18, 1987, p.4.
2. Ivo Daalder, *The SDI Challenge to Europe* (Cambridge, Mass.: Ballinger, 1987), pp. 112–24.

WORLD POLITICS

A Quarterly Journal of International Relations

Sponsored by the Center of International Studies,
Princeton University

Articles in recent and forthcoming issues of *World Politics* include:

Gregory M. Luebbert, Social Foundations of Political Order in Interwar Europe

George Downs and *David M. Rocke,* Tacit Bargaining and Arms Control

Condoleezza Rice, The Party, the Military, and Decision Authority in the Soviet Union

David D. Laitin, South Africa: Violence, Myths, and Democratic Reform

Paul Anderson and *Timothy J. McKeown,* Changing Aspirations, Limited Attention, and War

William C. Wohlforth, The Perception of Power: Russia in the Pre-1914 Balance

Hyug Baeg Im, The Rise of Bureaucratic Authoritarianism in South Korea

Subscription rates: U.S. and Canada: Individuals $16.50/yr.; Institutions $25/yr. Foreign: Individuals $20.50/yr.; Institutions $31/yr. Handling charge on foreign orders $3.50/yr.

Name: ____________________

Address ____________________

WORLD POLITICS Subscriptions, Princeton University Press,
3175 Princeton Pike, Lawrenceville, NJ 08648

Reviews

Nuclear Fallacy: Dispelling the Myth of Nuclear Strategy
by Morton H. Halperin
Ballinger, 1987
173 pages; $19.95

reviewed by Len Ackland

President Dwight D. Eisenhower's admonition about the dangers of the military-industrial complex is part of the repertoire of virtually everyone who speaks about the forces driving the nuclear arms race. But much less recognized is the fact that Eisenhower himself is responsible for the current U.S. nuclear structure, which treats nuclear explosives as weapons, has created more than 25,000 of them, and has deployed them throughout the world.

When Eisenhower took office in 1953, Harry Truman had already established the doctrine that nuclear devices could be used to actively promote the perceived global interests of the United States. But Truman had placed limits on these devices. He refused, despite intense pressure from the military, to transfer custody of nuclear warheads from the civilian Atomic Energy Commission (AEC) to the military, and he made the warheads seem unavailable by declining to define the circumstances under which he might authorize their use. Eisenhower quickly erased those limits. He ordered the AEC to turn over the nuclear stockpile to the military and, on October 30, 1953, signed presidential directive NSC 162/1 containing the ominous sentence: "In the event of hostilities, the United States will consider nuclear weapons to be as available for use as other munitions."

Morton Halperin points out in *Nuclear Fallacy* that with this sentence Eisenhower institutionalized the assumption that nuclear devices are weapons that can be used to fight and win wars. This is a fallacy, Halperin argues, because nuclear explosives cannot be used on a battlefield without destroying what they are supposed to defend, thus they are not weapons in any rational sense of the word. His book is a thought-provoking challenge to the false assumption that has led the United States to create "a doomsday machine linked to a roulette wheel." And Halperin suggests concrete, unilateral steps to dismantle that machine while improving U.S. and global security.

The prerequisite, to amplify Albert Einstein's warning, is that we change our way of thinking about nuclear devices. Until we truly understand that nuclear explosives have no purpose other than to discourage their use by an opponent, the world will continue to drift toward disaster. Halperin describes this decades-long drift in a brief historical chapter showing the deep roots of current U.S. nuclear strategy, which is to threaten the first use of nuclear weapons.

Such a strategy derives not only from a blindness to the destructiveness of nuclear devices, but also from the belief that nuclear threats have resolved past international crises. Halperin debunks this myth with thumbnail sketches of 20 incidents since World War II involving nuclear threats, concluding that in the resolution of each case, "the critical variables have been the nature of the security interests at stake, the balance of conventional military weapons, and skillful diplomacy accompanied by a willingness to compromise."

If nuclear weapons, in addition to threatening global survival, have not even helped resolve conflicts, then why not stop building ever larger and more sophisticated arsenals that increase the risk of accidental or inadvertent nuclear war? The United States should stop, Halperin argues, and it can do so without endangering its security. First, this country must abandon the conceptual model of nuclear explosives as "special weapons," the current basis of the nation's strategy, and substitute a "nuclear devices" model. The latter "assumes that any attempt to use nuclear devices will introduce a high risk of uncontrollable escalation, leading to the complete destruction of the country in which the war is being fought. Thus, nuclear devices, while vital to American national security, cannot be regarded as weapons and should not be placed in the hands of the military." As long as other nations have such devices, Halperin explains, the United States must also have them in order to retaliate or threaten retaliation and thus deter their use.

The nuclear devices model would require the U.S. government to segregate conventional military forces from forces handling nuclear devices, to order the military to assume that nuclear devices are not available for use, and to reassess the nation's international commitments. It would flip U.S. nuclear policy on its head, since the government would then seek to stigmatize nuclear weapons; ally itself with antinuclear movements; and support a nuclear test ban, a cutoff of fissionable materials production, nuclear free zones, and other progressive measures it now opposes. Anticipating skepticism, Halperin writes that this model may seem "utopian or unworkable" to those locked in traditional modes of thinking.

But the national security establishment will have a hard time writing off Halperin or his arguments. Regarded as one of Robert McNamara's stellar "whiz kids," he served as a deputy assistant secretary of defense in the Johnson administration and, briefly, in Henry Kissinger's National Security Council before moving to the Brookings Institution, then the Center for National Security Studies. Currently the head of the American Civil Liberties Union's Washington office, Halperin draws on his own experience and considerable research and writing by other scholars in the field to produce a readable, remarkably jargon-free book.

As a long-time participant in and student of bureaucratic politics, Halperin provides insight into the obstacles that will be faced in implementing the nuclear devices model. The last chapters of *Nuclear Fallacy* spell out how the U.S. government will have to revamp four main elements of the country's defense system: strategic nuclear forces, NATO, armed forces elsewhere in the world, and arms control policy. The final chapter notes the central role that the president would have to play in reversing current U.S. nuclear policy.

Halperin's book rests on the premise that armed defense is necessary but that reliance on nuclear weapons is stupid and dangerous. It is bound to displease fundamentalists of both the right and the left, since he argues that neither technical fixes (Star Wars) nor complete abolition of nuclear weapons is practical.

One does not have to be a fundamentalist, however, to take issue with parts of Halperin's presentation. For example, he implies that nuclear devices should never be used—although a president would eliminate their deterrent value by saying so—but does not address this issue head-on. Instead, he ducks it by stating his personal support for a no-first-use policy, writing that the new model does not "in all circumstances" preclude the initiation of nuclear explosives, and then making a strong statement favoring using only conventional forces.

Other points also need further elaboration. One involves the admittedly tough problem of nuclear forces in Europe. At different places in the book Halperin suggests that nuclear weapons could be deployed from the United States to Europe "in a crisis" and that a special nuclear strike force could be deployed in Europe or at sea under NATO command. All the while, he makes only two brief references to British and French nuclear forces. Finally, although the book's brevity is generally a strength, some items deserve more space. For example, Halperin describes how McNamara and his aides developed mutual assured destruction as a "management device" to justify turning down requests for more strategic weapons. Did this tactic work, despite being used as a debating tool by critics, or does he now feel that the bureaucratic players were too clever by half?

Such questions do not, however, detract from the importance of Halperin's book. It is concise, innovative, and realistic. His proposals deserve attention and debate, especially now that the 1988 presidential campaigns are getting underway. ☐

Len Ackland is editor of the Bulletin.

Military Objectives in Soviet Foreign Policy

by Michael MccGwire
Brookings Institution, 1987
550 pages; $39.95, $18.95 paper

reviewed by Coit Blacker

For those who write about U.S. and Soviet national security policies, few issues have been more central, and none more contentious, than the question of how to interpret Soviet military doctrine. The debate over this issue among American defense and arms control specialists has been especially acute since the mid-1970s, coinciding for the most part with the well-publicized modernization of Soviet strategic nuclear forces in the wake of the SALT I agreements.

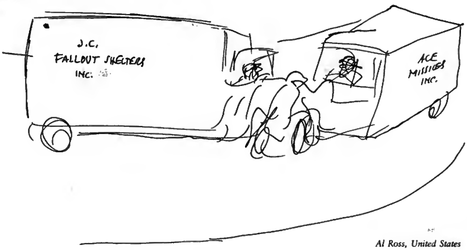
Arrayed on one side of the controversy are those who allege that Soviet leaders aspire to nothing less than the ability to fight and win a nuclear war. Arguing with equal vehemence are those who insist that the Kremlin harbors no such illusions; deterrence, they insist, constitutes the bedrock of contemporary Soviet military strategy. In the last 10 years many U.S. analysts have attempted to reconcile these sharply contrasting perspectives by offering more textured treatments. In particular, some have tried to demonstrate that Soviet authorities can hold both sets of views simultaneously. While doing all in their power to prevent the outbreak of war, this third group contends, the Soviets would almost certainly seek to prevail, should they conclude—for whatever reason—that a new world war had become inevitable.

Michael MccGwire, formerly a British naval officer and, later, professor of maritime and strategic studies at Dalhousie University in Nova Scotia, has been, since 1979, a senior fellow at the Brookings Institution. In his new book, *Military Objectives in Soviet Foreign Policy,* he advances yet a fourth interpretation that, at a minimum, promises to enliven and enrich the U.S. debate over Soviet military policy. It may even succeed in transforming it.

MccGwire, who has written extensively on contemporary military issues and is perhaps the West's leading analyst of Soviet naval policy, states that in December 1966, at a meeting of the Communist Party Central Committee, Soviet leaders formally embraced a new military strategy that had as its central objective what he terms "avoiding the nuclear devastation of Russia." Enabling this shift, according to MccGwire, was the profound realization on the part of senior Soviet officials that nuclear deterrence was rapidly becoming mutual; as a consequence, neither superpower could hope to escape catastrophic, nationwide destruction in the event of a strategic nuclear war with its principal adversary. Given this reality, the author contends that Soviet military planners had but two real options:

- The first was to accelerate the existing Soviet program in strategic defensive technologies in the hope of eventually procuring the kinds of forces that might afford the Soviet Union a meaningful degree of protection against a U.S. nuclear attack. MccGwire argues that this alternative, while attractive to the Soviets, was eventually discarded because of Moscow's sensitivity to the enormous technical obstacles that were certain to attend any effort to mount an effective defense against missile-borne nuclear weapons. The realization that the United States might undertake corresponding deployments, and that U.S. antiballistic missile systems might work better than their Soviet counterparts, also served to dampen Moscow's enthusiasm for such weapons. MccGwire cites the Kremlin's willingness to conclude the 1972 Anti-Ballistic-Missile Treaty as an important piece of evidence in this regard.

- The second alternative was to maintain the deterrent balance in offensive nuclear forces while, at the same time, sanctioning the acquisition of a new generation of conventional military capabilities, sufficient to enable the Soviet Union to wage a global military campaign against the United States and its allies *without resort to nuclear weapons*. This is the option, MccGwire contends, selected by Soviet leaders at the end of 1966, after extended debate.



Al Ross, United States

The author presents two kinds of evidence, physical and bibliographic, in support of his thesis. He notes, for example, important shifts in the design, and hence the mission structure, of Soviet tactical air forces, which he attributes to the December 1966 change in strategy. "The developments in frontal aviation," he writes, "reflected a shift from nuclear to conventional delivery systems and were part of a general reorientation of the Warsaw Pact's ground and air capability toward a conventional blitzkrieg capability."

Why the shift in capabilities? According to MccGwire, these and other nonnuclear weapons systems would be used to destroy U.S. theater and tactical nuclear weapons stationed in Western Europe before they could be employed against targets in Eastern Europe. By so doing, the United States and its NATO allies would have little choice but to fight a *conventional* war on the continent, a war in which Soviet forces were likely to enjoy the decisive advantage.

The alternative—to employ U.S. strategic nuclear forces in defense of NATO Europe—would entail unacceptable risks from the U.S. perspective, given that any use of such weapons against Warsaw Pact targets would be very likely to provoke Soviet retaliation in kind, possibly even strikes against the United States. MccGwire traces other changes in the design and performance characteristics of Soviet military forces, nuclear as well as conventional, to add weight to his claim that the centerpiece of contemporary Soviet military strategy is now to avoid "the nuclear devastation of Russia" in the event of a new world war with the West.

MccGwire's second line of defense is to compare Soviet military writings published before and after the December 1966 decision period, in an effort to discern any shifts in emphasis that might lend additional credence to his argument. He compares at some length, for example, the second (1963) and third (1968) editions of Marshal V.D. Sokolovsky's *Military Strategy*, highlighting a number of important differences—both additions and deletions—that, on balance, strengthen his case. Despite the author's careful reading, however, disagreements on these and other matters of interpretation will surely persist: what the author sees as compelling evidence in support of his hypothesis, others will regard as suggestive at best.

MccGwire makes what may well be his most important contribution to the debate over Soviet military doctrine when he observes that the Kremlin actually maintains two distinct strategies for war with the West. Moscow's prime objective, he insists, is to deter nuclear strikes against the Soviet Union by holding the United States hostage to the Kremlin's long-range nuclear forces. Much of the book is taken up with the effort to demonstrate why this constitutes Moscow's preferred strategy.

Should Washington fail to be deterred, however, and begin to ready its nuclear forces for use either in Europe or against the Soviet Union, MccGwire predicts a quick reversion to what he characterizes as that country's "pre-1966 hierarchy of objectives." In other words, were Soviet leaders to become convinced that the United States were about to "go nuclear," they would be very likely to order preemptive counterforce strikes against the United States in the expectation that by so doing they might succeed in destroying a sizable percentage of the U.S. strategic arsenal before launch, thereby limiting damage to the Soviet Union.

MccGwire concludes from this that American faith in the potential manageability of intense superpower crises is probably misplaced. In his view, any crisis situation explosive enough to erupt in war between the two sides carries with it extraordinary risks, as the Soviets are far more likely to think in terms of what he describes as "catastrophe folds" than in such predominantly Western notions as "incremental escalation" and the carefully calibrated use of military force to signal political resolve. His point—that the Soviets could switch quite suddenly and without warning from their first, and preferred, strategy to the second—is well taken and deserves further study.

Michael MccGwire has produced a fascinating, provocative, and important book. Some will find his argument elegant and compelling, an analytical tour de force. Others will dismiss it as mere speculation, an interesting idea carried to extremes. For MccGwire, whose work has often generated such controversy, being at the center of intense debate is hardly a novel circumstance. Although the message has become a cliché of sorts, in this case it bears repeating: for all who follow Soviet military affairs closely, MccGwire's new book constitutes essential reading. ☐

Coit D. Blacker is associate director of the Center for International Security and Arms Control at Stanford University, and the author of Reluctant Warriors: the United States, the Soviet Union, and Arms Control *(1987).*

Shadows and Whispers:
Power Politics inside the Kremlin from Brezhnev to Gorbachev
by Dusko Doder
Random House, 1986
350 pages; $19.95 cloth

reviewed by Nina Tumarkin

As Leonid Brezhnev's coffin was being lowered into its final resting place in Red Square, one of the suspension straps broke or slipped and the coffin came tumbling down. It would be hard to contrive a more fitting end to the career of this general secretary of the Communist party of the Soviet Union. From 1964 to 1982 he presided over a political and economic system that grew increasingly corrupt and inefficient. It is no wonder then that no mechanized device was available to lower the body into a grave next to Stalin's, and that either the straps were shoddy or one of the workers handling them was drunk. By the time Dusko Doder arrived in Moscow in 1981 for a four-year stint as bureau chief of the *Washington Post*, the economy and body politic were as sluggishly sclerotic as the arteries of their desperately ill leader.

Doder had reported on the Soviet Union on three earlier occasions, but it is the period from 1981 to 1985, with the addition of a return trip in 1986, that provides the foundation, material, and organizing principle of *Shadows and Whispers: Power Politics inside the Kremlin from Brezhnev to Gorbachev.* The author chose his title brilliantly, for it perfectly articulates the substance and mood of his intelligent, lively, and wonderfully readable book. Shadows and whispers are what the journalist saw and heard when he tried to penetrate the shroud of secrecy surrounding the Kremlin. There is an old Russian proverb: "Don't take your garbage out of the hut." Its meaning: wield power in secret. This operating principle aptly describes the workings of the Politburo and, to a lesser extent, of Soviet power politics more generally. Thus, a determined journalist like Doder had to resort to gathering information by combining the "analysis of signs and portents"—shadows—with the sifting of information and gossip passed on to him by a large variety of carefully cultivated sources—whispers.

It is hard to resist the fascination of glimpsing the real Wizard of Oz when someone has raised, slightly, the curtain shielding him from public view. Doder, who has done a masterful job of piecing together a narrative of recent Kremlin politics, pulls at the reader's propensity to take pleasure in learning about that which is always hushed up. He fits the little pieces of his mosaic into a foundation of selected information on the Soviet political system, the economy, and, occasionally, relevant foreign policy issues current during the first half of the 1980s. But the emphasis of the book is on four main themes: the four men—Brezhnev, Yuri Andropov, Konstantin Chernenko, and Mikhail Gorbachev—who in the course of four years held the post of general secretary; the crucial importance of the transitions between them in a system where, with one exception—Khrushchev—the general secretary has retained his job until death; the intense level of intrigue that characterizes Kremlin politics; and, most vividly drawn of all, the work life of the journalist who, like the author, seeks to inquire into high politics.

The last theme is by far the most successfully expounded portion of the book. Much of the narrative is written in the first person and conveys the excitement and tension produced by the need to speculate on important events on the basis of small clues. In fact, the book opens with an entire chapter detailing the big scoop of Doder's career—deducing well before the announcement was made that Yuri Andropov had died on February 9, 1984.

Doder's first clue came when he noticed an omission in a televised speech by a high party official. Igor Ligachev, a Central Committee secretary, while visiting the Siberian city of Tomsk failed in his speech to convey Andropov's greetings to its people. In an instant Doder was off and running. Public politics in the Soviet Union are so ritualized that a departure from the set format becomes truly significant. A good journalist needs to be acquainted with the details of these rituals. Doder found other clues. He drove by the Ministry of Defense and found the lights all on. He consulted colleagues and learned that Andropov's son had suddenly left Stockholm, where he was a member of the Soviet delegation at a disarmament conference. The conclusive clue came at 11:35 that night when a scheduled radio jazz concert was, without explanation, replaced by classical music. The same shift in music, from popular to classical, had occurred when Brezhnev died in November 1982. Doder was the only journalist to file a story on Andropov's death in advance of the public announcement.

Doder comes across as a very appealing man, full of energy, curiosity, and healthy self-confidence. The many anecdotes he recounts about his experiences make this book a fine account of the joys and frustrations of journalism under the most challenging conditions. At the same time, those conditions render the other themes of his book decidedly weaker than his own story. On the subject of high politics, Doder's main sources were the many highly placed acquaintances from whom he culled valuable information. His excellent command of Russian (he is of Yugoslav background) and an apparently charming personality were doubtless enormously effective in helping him establish and maintain contacts who must, understandably, remain anonymous. As a result we learn fascinating nuggets about high party officials. In particular, the portrait of Andropov, who is presented in a largely positive light, is rich with inside information. Andropov kept a statue of Don Quixote on his desk. When he was appointed head of the KGB he passed by its headquarters with a friend and remarked: "All my life I have been walking past this building with a feeling of unease and awkwardness. Imagine, now I'm going to become its boss." And Andropov, who was very much in love with his wife and even wrote her love poetry, was one of the few high Soviet officials who never had a mistress.

How does Doder know these things? He heard them from his sources. But we have no way of knowing which of his sources reported correctly, which ones passed on rumors or misinformation, which ones exaggerated. We must take it on faith that Doder was able to base these parts of his book on fact and not hearsay. That faith is difficult to summon. Doder himself quotes Turgenev who once called Russians the world's most incorrigible liars.

I felt on firmer ground when reading the detailed description of Chernenko, whom Doder personally interviewed. The portrait of Gorbachev is of a very smart, capable, and self-assured leader who rose by merit from a humble background to make a brilliant career. When compared with the memoirs, biographies, and psychobiographies of U.S. presidents, *Shadows and Whispers* reminds us of how little we know about the other men upon whom the world's stability and safety are utterly dependent. ☐

Nina Tumarkin is associate professor of history at Wellesley College in Massachusetts and a fellow at the Harvard Russian Research Center. The author of Lenin Lives! The Lenin Cult in Soviet Russia *(1983), she is currently working on a book about the Soviet memorialization of World War II.*

Book notes

A Modern Day Yankee in a Connecticut Court
by Alan Lightman
Viking, 1986
190 pages; $14.95

Literate popularizers of science are as rare as elements with high atomic numbers. But Alan Lightman may be added to the ranks of a genre best represented by writers such as Lewis Thomas, John McPhee, and Stephen Jay Gould. Lightman blends whimsy with deft explanation to produce, in his most recent book, 22 enjoyable essays spanning the physical sciences.

The collection's title is lifted from the final chapter about a man accidentally thumped on the head and transported 100 years into the past. He tries to prove his origins by explaining future technologies but is threatened with a term in the asylum. At a critical moment he presents his accusers with a ballpoint pen and this, it seems, constitutes enough proof of future worlds to save Lightman's hero in time for a return-trip thump.

Lightman's tales venture through, among other subjects, optics, particle physics, gravitational waves, and "A Modest Proposal" that suggests a startling means of instilling the fear of nuclear war in generations untouched by it. ☐

U.S. Arms Exports: Policies and Contractors
by Paul L. Ferrari, Jeffrey W. Knopf, and Raúl L. Madrid
Investor Responsibility Research Center, 1987
353 pages; $60.00 paper

The unraveling of the Reagan administration's Iran-contra arms trafficking activities has put the netherworld of the weapons-for-money trade into the spotlight. Not since the turn of the century have private merchants so dominated peacetime transfers of weapons in so unregulated and counterproductive a manner. At that time, according to *U.S. Arms Exports: Policies and Contractors,* the Du Ponts and other firms supplied opposing sides in both the Latin American struggles for independence and the Crimean War. By the time the United States entered World War II, however, such practices fell subject to growing regulation, and arms dealing became, say the authors, "an important instrument of U.S. foreign and national security policy."

Richard Cline, United States

U.S. Arms Exports documents the decline and resurgence of officially sanctioned arms sales worldwide, examines these sales by region, and profiles 27 U.S. military-supplies exporters. Each profile summarizes sales data, cites the value of defense contracts awarded, provides a nutshell business history of the supplying corporations, and lists military orders filled by the companies between 1982 and 1985. The information in these profiles is arranged, in a second set of tables, to a country-by-country survey indicating what each nation bought and how much it paid. Many of the purchasing nations are poor, and the scale of the transactions indicates that the present generation of suppliers has no more concern for those nations' well-being than did its predecessors. ☐

Science and Society: A Directory to Information Sources, Volume 1, Defence and Arms Control
by Canadian Student Pugwash
CSP, 1986
282 pages; $9.95 paper

Citizens need specific technical and historical information regarding nuclear war in order to influence policy decisions on the issue. *Defence and Arms Control* by Canadian Student Pugwash is a recent addition to the growing body of research literature accessible to activists looking for documentary tools in the struggle against nuclear war. Broken into four main sections, the text cites hundreds of publications, teaching aids, organizations and institutions, and researchers and educators. Each section is further divided into tighter categories that swiftly channel the reader to a desired topic and source.

The book carries a distinct Canadian bias in source selection, but this detracts marginally from its utility in light of the international scope of the nuclear dilemma.

Stocking up for the big rerun

There is no question that the military is attempting to prepare for global, protracted, conventional war as suggested by William Arkin in the May 1987 *Bulletin*. The military has been accused throughout history of always "fighting the last war," and they are at it again.

More than five years ago, when I was an officer of a company that manufactured blastproof loudspeakers, gas mask microphones, and similar items for military tactical communications equipment, my firm was subjected to a routine survey by the "industrial preparedness" office of the local Defense Contracts Administration Service office. The survey's purpose was to determine the peak capacity that we might muster to produce our products. This survey was like all of the previous ones except that the quantities they were looking for ranged from 10 to 20 times what the survey-takers had ever forecast before.

Thinking there was an error, I called the marketing manager of a large defense contractor that specialized in one of the radios in which our speakers were installed. He told me that his firm also had been surveyed and that the quantities were so great that someone had to be war-gaming a long, conventional, two-theater war. We were certain such quantities would never be bought.

Between 1983 and 1985, however, there was in fact a tenfold increase in the quantities of audio accessories purchased. A similar increase occured in equipment procurements. In 1986, a contract issued to my successor's firm for our blastproof speaker called for quantities equal to the prior ten years' production. Competitors and companies making related components have also received contracts for similarly inflated amounts. For example, there is a bid opening at the end of June for nearly 150,000 pilot's helmets complete with a built-in headset, noise-cancelling microphone, switching, cables, and connectors. The forecasted total for this contract is $35 million. To put this in perspective, an order for 10,000 to 20,000 such helmets would have been considered big five years ago; a single $4 million contract for this item at that time would have been considered impressive.

The manufacturers do not necessarily benefit from this inflated spending because such large quantities generate intense competition and expose the industry to offshore competitors for the first time. Lower-level Defense Department personnel do not seem to be the culprits in the buying spree since they have little to say in the force-level decisions that create the supply requirements satisfied by contractors such as my former firm.

There have to be players somewhere in Washington who are dreaming of replaying World War II.

David L. Wiesen
Newark, New Jersey

Excluding the most excludable

The May *Bulletin* carries a timely article by Jamie Kalven criticizing exclusions from the United States under the antidemocratic McCarran-Walter Act. It features nine persons from across the political spectrum who have been excluded under provisions of the act. But there is a startling omission. As Kalven notes, the act was directed primarily against communism and Communists, U.S. citizens and foreigners, and, especially, against Soviet citizens.

None of the persons mentioned in the article is identified as a Communist or supporter of communism. Even more incongruous, no mention is made of a single Soviet citizen barred from entering this country. The act, however, has been used chiefly against these categories of people.

Just last April two Soviet journalists, part of a delegation of Soviet citizens visiting the United States, were refused visas. There are many such cases. They may not be reported by the *New York Times*, but they are reported by organizations interested in promoting U.S.-Soviet relations and by publications such as the *Peoples Daily World*. A particularly shocking case was the refusal, at least once, of a visa to General David Abramovich Dragunsky, a hero of the war against fascism. Because of his Jewish background, there was broad interest in having discussions with Dragunsky. Presumably the visa was denied because of fears that he would offset some stereotypes about the status of Jews in the Soviet Union.

The most important and systematic exclusion under McCarran-Walter is the barring of the 90 million members of Soviet trade unions. If they wish to enter this country as members of a union delegation, they are refused. The excuse offered by the government is that Lane Kirkland, head of the AFL-CIO, doesn't want them admitted. Since when does the AFL-CIO dictate U.S. policy, or Lane Kirkland speak for most active U.S. trade unions? Of the 34 trade unions that officially participated in the April 25 peace march in Washington, D.C., Kirkland does not speak for one.

All postwar U.S. administrations have barred Soviet delegations and avoided including Soviet labor representatives in their agreements of cooperation with various other Soviet groups. In fact, American unions want relationships with Soviet unions for information exchange or for mutual benefit. Officially appointed delegations of the United Automobile Workers and other major unions visit the Soviet Union frequently and on some occasions arrange meetings with Soviet delegations in Canada so as to avoid the McCarran-Walter barrier.

Perhaps official Washington fears that such exchanges and information-sharing about labor conditions and union rights might spur union activity here, where economic conditions have been deteriorating and where, in any case, the resistance is picking up.

The contrast is notable now when Moscow's doors are wide open to a broad array of U.S. visitors, and when recognition of the need for better relations is accepted by the Soviets as important in reducing and finally eliminating the danger of nuclear war.

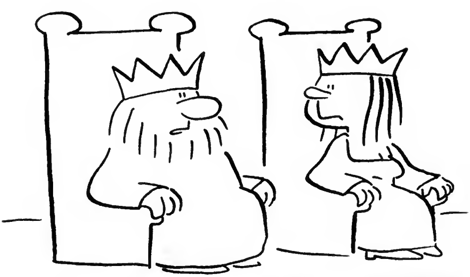
The one-sidedness of Kalven's article is, indeed, regrettable. If he agrees with the exclusion of Communists and Soviet citizens, he should say so. As it stands, the *Bulletin* is in the position of attacking McCarran-Walter only peripherally and avoiding an assault on its most fundamental aspect.

Victor Perlo
Croton-on-Hudson, New York

* * *

Jamie Kalven responds: I am puzzled by Victor Perlo's letter. My article was about the denial of visas on ideological grounds. The chief such ground is Communist beliefs and affiliations. The impact of the law on Communists and ex-Communists was thus the central focus of the article. Is Perlo's point that I somehow slight Communists denied visas on ideological grounds because I also report on others similarly victimized?

This point of confusion aside, I am grateful to Perlo for adding a useful point: one of the hurdles those seeking to reform U.S. visa policy face is the opposition of the AFL-CIO, which has long taken the position that labor officials from Communist countries that do not allow independent unions should be barred when they seek to visit this country as labor leaders.



Rex May, United States

"Of course I spy on all our subjects—didn't you hear about the Freedom of Information Act?"

Star Trek/Star Wars connection

Arttie Gomez's letter (April 1987) takes issue with the fact that a photograph from *Star Trek* was used to illustrate my January/February 1987 article, "Reagan, Star Wars, and American Culture." Although illustrations were selected by the *Bulletin*'s editors, I fully concur with the use of that photograph and disagree with Gomez's analysis of *Star Trek.*

The Federation that dominates *Star Trek*'s imagined universe is not so much a picture of internationalism triumphant in the future as it is a thinly veiled glorification of the United States' role in the world today. Like the United States, which binds together (read: federates) formerly sovereign states on a mission of frontier exploration and eventual global dominance, *Star Trek*'s Federation carries baldly American social, moral, and legal prejudices into the far reaches of space, and battles an evil and monolithic (read: Communist) opponent, the Klingon Empire, in hopes of insuring the success of these values on alien planets. Like contemporary Americans, Federationists in *Star Trek* do not see this as an imposition on those alien cultures, but merely as helping them to realize their full potential. The Federation represents virtue, and this not only legitimates its work but also gives it its technological edge over the Klingons. Ultimately, *Star Trek* preaches that technology is benign and humanistic to the extent that it accords with Federation (read: American) values.

This is basically the same faith that, I argued, President Reagan brings to SDI, and that is why recalling Captain Kirk in this context was a perfectly correct choice.

Jeff Smith
Bowling Green, Ohio

Aiming at empty silos

Gerald E. Marsh (March 1987 *Bulletin*) argues that protecting U.S. land-based missiles increases the possibility of preemptive strikes by both sides. But he does not distinguish between the threat to the Soviet Union from an erosion of its preemptive capability and the threat that country faces from the deployment of a larger number of U.S. nuclear warheads.

A defense of U.S. land-based missiles would certainly erode Soviet preemptive capability, but it could not increase the threat of a U.S. nuclear strike. If Soviet missiles were not to face an increased threat of destruction, the Soviet need for a preemptive strike would not be greater than at any time before the deployment of the U.S. defensive system. The increased need for a U.S. preemptive strike would, therefore, be nonexistent. In order to meet the threat from an erosion of its preemptive capability, the Soviet Union could easily attempt to overwhelm the limited defenses by deploying a larger number of warheads on its land-based missiles.

Also, the idea that the possibility of an ineffective Soviet second strike could force Moscow to preempt is incredible, as it assumes that a U.S. first strike would be met with a Soviet attack on empty U.S. missile silos.

Rahul Roy-Chaudhury
Oxford, England

* * *

Gerald E. Marsh responds: Discussions of strategic stability all too often ignore the potentially different missions of the various components of the strategic triad. In writing on the dangers of limited SDI, where I advocated evolving toward a strategic diad, my principal concern was and is to reduce the incentive for the United States to rely on a launch-on-warning posture. I have a similar concern about the Soviet Union, although I did not address the issue from that perspective.

Given the very high force levels on both sides, a possible increase in the net number of warheads after deployment of the Trident II missile does not give me great cause for concern, as it apparently does Rahul Roy-Chaudhury. In the long run, the number of warheads may actually decrease. The increased survivability of the Trident II compared to the MX could allow the United States to maintain the same current capability against the Soviet Union in a second-strike scenario, while the total number of warheads is allowed to decrease. Whether or not this happens is a matter of policy and of the dynamics that drive the arms race.

I would agree that protection of land-based missiles would not increase the threat of a U.S. first strike, but it would, as Roy-Chaudhury apparently agrees, lead to arms-race instability in that it would give the Soviets an incentive to increase the number of warheads targeted against protected missile sites.

Soviet preemptive capability should not be judged simply as the number of U.S. warheads destroyed, but also as the ability to prevent the particular force in question—in this case the land-based missiles—from carrying out their intended mission. In this context, Soviet preemptive capability against the currently deployed land-based missiles could only be eroded by a highly effective defense. Having a random amount, say 20 percent, of the land-based force survive is not an adequate defense. All missiles do not have identical types of targets, and since we would not know which 20 percent would survive, it would be impossible to carry out a timely, coordinated attack against a possibly limited set of targets. From the Soviet perspective, their attack would have been successful. From the U.S. perspective, an 80 percent effective defense would not remove the incentive to launch on warning so as to preserve time coordination capabilities and the ability to attack specific targets. On the other hand, if the missile force were to have a survivable and rapid retargeting capability, this argument would be vitiated.

Roy-Chaudhury's final point, that "a U.S. first strike would be met with an attack on their empty missile silos," again does not take into account the potential mission of the land-based force. It is not obvious that the U.S. silos would all be empty—some high-accuracy weapons might be withheld to preserve the ability to strike particular high-value Soviet targets. After all, if everything is launched there would be no one left to negotiate with.

As I claimed in my article, if the Trident II is deployed in such a way as to make full use of its capabilities, the pathological instability created by the deployment of the MX could be ameliorated if not eliminated; because the Trident II's mission could be identical to that of the land-based missiles, the vulnerability of these missiles would no longer be a cause for concern, and there would be no need to go through the effort of trying to protect them.

Technostrategic language

Carol Cohn's contribution on nuclear language (*Bulletin,* June 1987) is major. It addresses a psychological defense that characterizes the defense intellectuals only a bit more than the rest of us. Like Cohn herself, the self-appointed watchdogs of the nuclear priesthood find themselves similarly infected with technostrategic "military masculinity and decontextualized rationality"—a fitting example of nukespeak in words of the author's choosing.

Cohn rightly points out that "the language is not well suited to do anything but make it possible to think about using nuclear weapons." But technostrategic language, "developed . . . specifically to make it possible to think rationally about the use of nuclear weapons," taints the language and the thinking of all professionals concerned with social responsibility. A preoccupation with nuclear strategic thinking or with power-pragmatic political action not only invites but requires a language that diverts most students of the nuclear hazard from plain common sense, common interests, and common decency—and from the business of assuring the preservation of the global community. "There is no way," Cohn says, "to talk about human deaths or human societies when using a language designed to talk about weapons."

Cohn's observations and interpretations are profound, critical to a change

МОСТЫ К МИРУ

VISIT THE
USSR
IN 1987

with US-USSR
Bridges for Peace:

OCTOBER 11-26: $1790
MOSCOW, RIGA, LENINGRAD

"Bridges" has developed an extensive network of contacts in the USSR through four years of exchange project work with a variety of Soviet organizations. These contacts enhance our tours, adding a significant dimension of citizen dialogue.

For more information, write to address below, or to reserve your place, send deposit of $150, specifying which tour, to:

US-USSR BRIDGES FOR PEACE
BOX 710E, NORWICH, VT 05055
(802) 649-1000

МОСТЫ К МИРУ

of course from the present one of insuring that weapons survive at any human costs. Her thoughtful conclusions will be little noticed unless both the nuclear priesthood and its critics consider and kick the addictive illusion we are all threatened with, a hallucination that obliterates any vision and dulls any feeling for the human condition and all that makes life meaningful.

Donnell W. Boardman
Acton, Massachusetts

* * *

Seldom have I seen an article that impressed me as did Carol Cohn's on nuclear language. Reading this article seems to me vital to public health.

Martha A. Bartter
Marion, Ohio

Origins of the Cold War

Searching for the origins and causes of social, political, and economic policies and movements is a rewarding experience. Paul Boyer's review of *The Iron Curtain: Churchill, America, and the Origins of the Cold War* (May 1987) reminded me of my dilettante search for the origins and causes of the Cold War. In *Even the Gods Can't Change History,* George Seldes provides that origin.

Rosalie Bertell

NO IMMEDIATE DANGER

Prognosis for a Radioactive Earth

A radiation research scientist's rebuttal to the claim by pro-nuclear officials that there are no harmful effects from low-level radiation emitted by nuclear facilities and processes. A documented look at a side of the nuclear story that few see, and its implications for future generations. A very readible and impressive book

ISBN 0-913990-25-2 $11.95

THE BOOK PUBLISHING CO.
P.O Box 99
Summertown, TN 38483

To order, circle number 16 on the Reader Order Card. We will bill you later.

Seldes writes that the Cold War was initiated by Marshal Ferdinand Foch on January 17, 1919, in a speech to 21 reporters of General John Pershing's press section, one of whom was Seldes. Seldes observes: "No one sensed that Foch here and now was beginning a propaganda campaign for the containment of Bolshevism, a campaign that would in time become known as the cold war."

In the same year as Foch's speech, Thorstein Veblen provided the reason for the Cold War when he wrote in the *Dial:* "Bolshevism is a menace to the Vested Interests of property and privilege. Therefore the guardians of the Vested Interests have been thrown into a state of Red trepidation by the continued functioning of Soviet Russia and the continual outbreaks of the same Red distemper on the continent of Europe. . . . It is feared, with a nerve-shattering fear, that the same Red distemper of Bolshevism must infect the underlying population in America and bring on an overturn of the established order."

E.F. Patterson
Davidson, North Carolina

ANNOUNCEMENTS

The Fulbright Scholar-in-Residence Program invites U.S. colleges and universities to submit requests for visiting scholars from abroad for all or part of the 1988–1989 academic year. Proposals are invited for scholars in the humanities and social sciences, or in scientific or professional specializations with a strong international focus. The deadline for receipt of proposals is November 1, 1987. Guidelines and forms are available from the Council for International Exchange of Scholars, 11 Dupont Circle N.W., Suite 300, Washington, D.C. 20036. Telephone: (202) 939–5401.

The Council reminds faculty and scholars that the competition for Fulbright Scholar awards is in progress. For applications, call or write the Council.

The Committee on Scholarly Communication with the People's Republic of China announces a national program for scholarly exchanges for the 1988–1989 academic year. The graduate and research programs offer graduate students and scholars in social sciences and humanities opportunities for long-term research in China. A short-term visiting scholar exchange program offers Americans in natural sciences, engineering, social sciences, and the humanities opportunities to lecture and conduct research in China. This program also invites requests for Chinese scholars to come to the United States. Apply by October 10, 1987, to CSCPRC, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418. Telephone: (202) 334–2727.

The American Association for the Advancement of Science invites entries for the 1988 AAAS award for Scientific Freedom and Responsibility. The $1,000 annual prize honors scientists and engineers whose exemplary actions, often taken at significant personal cost, have served to foster scientific freedom and responsibility. The prize recognizes those who have acted to protect public health, safety, or welfare; focused public attention on important potential impacts of science and technology on society; or established new precedents in carrying out the social responsibilities or in defending the professional freedom of scientists and engineers. Deadline for nominations is August 31, 1987. Contact AAAS, 1333 H Street, N.W., Suite 1101, Washington, D.C. 20005.

The Fellowship of Reconciliation seeks nominations for the tenth annual Martin Luther King, Jr. Award to a person or group in the United States who is making a significant contribution to the nonviolent struggle for a peaceful and just society. Nominations should be submitted by October 1, 1987, in the form of a typed letter 1–4 pages in length. Up to three pages of supporting material such as newspaper clips and writings by the nominee may be included. Send nominations to the Martin Luther King, Jr. Award, F.O.R., Box 271, Nyack, NY 10960.

Nuclear Notebook

■ Trouble with Tomahawk?

The U.S. Navy has apparently decided to shift the emphasis of its Tomahawk sea-launched cruise missile program away from nuclear-armed land-attack missiles toward conventionally armed variants. The current five-year plan, for fiscal years 1988–1992, significantly reduces the number of nuclear missiles to be purchased. Last year's projections called for buying the remaining 440 of 758 nuclear Tomahawks during fiscal years 1988–1991. This year's plan calls for buying only 93 missiles during the same period (19 in fiscal 1988, 28 in 1989, 46 in 1990, and none in 1991 and 1992). The last 327 nuclear missiles are to be purchased in fiscal 1993. The Navy is currently buying three conventionally armed Tomahawk variants: a precision land-attack missile, an anti-ship missile, and a "combined-effects bomblet" missile to attack airfields. Previous projections were to purchase 618 of these in fiscal years 1988 and 1989, but this year's budget asked for 937.

This revised schedule suggests either that the Navy's priorities have changed, that it is having production or operational problems with the Tomahawk nuclear warheads, or that it is engaged in an internal bureaucratic fight over whose budget will be charged for production.

■ New medium machine builder

The Soviet government agency responsible for the design, testing and production of nuclear materials and warheads, the Ministry of Medium Machine Building, has a new head for the first time in 27 years. Lev Dmitriyevich Ryabev became the top nuclear weapons official in January, according to a report published by the Central Intelligence Agency. Ryabev replaces Yefim Pavlovich Slavski, who was the minister from 1960 (and deputy minister since 1953). Slavski, who was born on November 7, 1898, was relieved by the Presidium of the Supreme Soviet on November 21, 1986, due to poor health. Ryabev, born in 1928 and a member of the Central Committee since 1971, has a reputation as a troubleshooter and able administrator. He served on the Secretariat of the Central Committee from 1976 to 1979, and from 1979 to 1983 was responsible for foreign trade. The Ministry for Medium Machine Building was originally established in 1953, downgraded to a state committee in 1963, and reestablished as a ministry in 1965.

■ Secret test monitors

An obscure U.S. military unit, the Air Force Technical Application Center (AFTAC), operates the Atomic Energy Detection System in more than 35 countries. The system was created after General Dwight Eisenhower directed the Army Air Forces in September 1947 to "detect atomic explosions anywhere in the world." Today it is one of the most secret U.S. military operations because of its many covert facilities in foreign countries. From its headquarters at Patrick Air Force Base in Florida, AFTAC operates at least 92 sites capable of detecting nuclear events in the atmosphere, under water, under ground, and in space.

Most of the sites are seismic stations located at or near U.S. military bases overseas. Other sites—in Finland, Hong Kong, Pakistan, and Thailand, for example—are concealed in embassies and consulates, or, as in South Africa, in commercial buildings. Argentina, Bangladesh, Fiji, Jordan, the Seychelles, Sweden, and Taiwan all host secret AFTAC installations. AFTAC also operates sensors aboard satellites, high-frequency electromagnetic pulse detectors, and hydroacoustic sensors beneath the sea floor, and the unit has conducted radiation-monitoring experiments aboard space shuttle flights.

■ New Mirages on the horizon

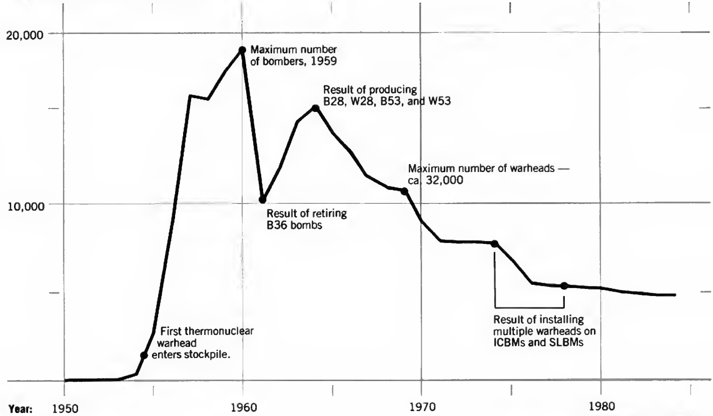
On February 19 the French air force received its first new production fighter bomber, the Mirage-2000N, at its Bordeaux-Merignac training base. The aircraft is part of an intensive nuclear modernization program that will include a new MIRVed submarine-launched ballistic missile, a new tactical missile called Hades, and numerous improvements in range and accuracy.

One-hundred-twelve Mirage-2000Ns will eventually replace the tactical air force's Jaguar and Mirage III-E fighters, which can carry either conventional or nuclear weapons. When deployed in its first tactical wing at Luxueil Air Base in mid-1988, the new fighter will be armed with a supersonic, medium-range, air-to-surface missile, the ASMP (*air-sol moyenne portée*), which carries a 300-kiloton nuclear warhead. Two squadrons of Mirage IV-P bombers are already equipped with the ASMP, which replaced the 60-kiloton AN-22 nuclear bomb. In its tactical role, the ASMP will also be deployed in 1988 on the carrier-based Super Etendard aircraft, replacing a 25-kiloton ANT-52 nuclear bomb.

Nuclear Notebook is prepared by the Nuclear Weapons Databook *staff of the Natural Resources Defense Council and edited by Robert S. Norris and William M. Arkin. Inquiries should be directed to NRDC, 1350 New York Avenue N.W., Suite 300, Washington, D.C. 20005 (202-783-7800).*

Explosive power of the U.S. nuclear weapons stockpile

Expressed in equivalence to megatons (millions of tons) of TNT.



Informational graphics: Michael Yanoff

Total megatonnage of U.S. nuclear weapons stockpile, 1950-1984

End of FY	Yield (Megatons)
1950	77
1951	103
1952	128
1953	154
1954	386
1955	2,819
1956	9,152
1957	16,335
1958	16,142
1959	17,764
1960	19,000
1961	10,272
1962	12,203
1963	14,820
1964	15,756
1965	14,134
1966	13,053
1967	11,856
1968	11,045
1969	10,929
1970	9,114
1971	7,994
1972	7,955
1973	7,916
1974	7,800
1975	6,797
1976	5,561
1977	5,484
1978	5,368
1979	5,329
1980	5,291
1981	5,059
1982	5,020
1983	4,924
1984	4,866

The power of a nuclear explosion is called the yield and is measured in terms of an equivalent amount of TNT. One kiloton equals 1,000 tons (2,000,000 pounds) of TNT, and one megaton equals 1,000,000 tons (2,000,000,000 pounds) of TNT. Common high-explosive aerial bombs used during World War II and the Vietnam War weighed 500–1,000 pounds, about half of which was explosive. The smallest nuclear bombs and warheads in the U.S. stockpile have been on the order of 0.01 kilotons, or 40 times the explosive power of a 1,000-pound conventional bomb. The largest U.S. weapons were produced in the 1950s and 1960s, some with an explosive power of up to 15 megatons.

The table and graph show the growth and development of the U.S. nuclear stockpile. With the introduction of large numbers of thermonuclear weapons, beginning in 1955, the megatonnage rose dramatically and peaked in 1960, at about 19,000 megatons. At that time the Strategic Air Command, which dominated U.S. war plans and operations, had approximately 1,600 bombers and thousands of bombs, many with high yields. This changed when land-based and submarine-launched ballistic missiles entered the arsenal and many bombers were retired. Megatonnage came down as lighter, more accurate missile warheads replaced heavier, less accurate ones, and the strategic bomber force began using lighter, lower-yield, but more versatile bombs. This trend is now reversing. Several new warheads for ballistic missiles have both greater accuracy and higher yields.

Table and graph from Thomas B. Cochran, William M. Arkin, Robert S. Norris, and Milton M. Hoenig, *Nuclear Weapons Databook*, vol. II: *U.S. Nuclear Warhead Production* (Cambridge, Mass.: Ballinger, 1987), pp. 17, 18.

The Second Annual AAAS Colloquium on Science, Arms Control, and National Security

SCIENCE AND SECURITY: NUCLEAR AND CONVENTIONAL FORCES IN EUROPE

Monday, September 28 – Tuesday, September 29, 1987
Hyatt Regency Crystal City Hotel
Arlington, Virginia

Last December, the First Annual AAAS Science, Arms Control, and National Security Colloquium drew over 400 policymakers, scientists, academicians and professionals involved in the study of arms control and national security issues. This year's meeting, building on that success, will again offer you an important opportunity to be on the cutting edge of the debate over arms control and national security policy.

Again this year, policymakers from the Administration will be joined by nationally recognized outside authorities to present a broad and balanced view of the complexities of these timely and politically urgent issues. If you have an interest in European security, SDI, or the interplay between science and technology and arms control/national security policy, you should attend this colloquium.

1987 PROGRAM

Plenary Sessions will feature top-level policy advisors, and scientific and technical analysts:

- Science and Technology: Shaping National Security Policy and American Competitiveness
- Advances in Weapons Technology and Their Impact on National Security and Arms Control
- American Nuclear Strategy and European Security
- European Security: Relationship Between Nuclear and Conventional Forces
- Growing Contributions of the Scientific Community to International Security

Smaller Group Sessions will provide an opportunity for more technical discussion and debate:

- SDI: Technical Advances and Their Relationship to the ABM Treaty
- Emerging Technology Conventional Weapons: Technological Advances and Projected Role
- Role of ATBMs in European Security
- Enhancing the U.S. Deterrent: Force Survivability and C^3I Requirements
- Assessment of U.S./Soviet Biological and Chemical Warfare Capabilities in Europe
- Nuclear Proliferation in Developing Countries

Two important publications are included with each registration:

A **Preconference Reader,** with some 20 in-depth essays on European Defense Policy, Conventional and Nuclear Forces in Europe, and European Theatre Arms Control.

The **Colloquium Proceedings,** a complete transcription of plenary and smaller sessions from the colloquium, capturing the essence of addresses and discussions.

For more information about the 1987 AAAS Science, Arms Control, and National Security Colloquium, please contact: Raymond Orkwis, Projects Coordinator, Committee on Science, Arms Control, and National Security, The American Association for the Advancement of Science, 1333 H Street, NW, Washington, DC 20005. (202) 326-6490. Please mention this publication.

The American Association for the Advancement of Science

Copyrighted material

THE WILSON CENTER

Just Published

STRATEGIC DEFENSES AND SOVIET-AMERICAN RELATIONS

Samuel F. Wells, Jr. and **Robert S. Litwak,** editors

Contributing the essential tool of historical analysis to the SDI debate, this book examines neglected dimensions of strategic defenses and provides the background for understanding SDI in its full context.

April 1987 232 pages
0-88730-212-2 cloth, $29.95
READER ORDER CARD NO. 1
0-88730-218-1 paper, $16.95
READER ORDER CARD NO. 3

LIMITING NUCLEAR PROLIFERATION

Jed C. Snyder and **Samuel F. Wells, Jr.,** editors

"... a comprehensive reflection of current American thought on the subject ... essential reading for any contemporary student of the nonproliferation system."
— *Survival*

September 1985 408 pages
0-88730-042-1 cloth, $29.95
READER ORDER CARD NO. 5

Forthcoming

REGIONAL SECURITY

The Wilson Center

This fascinating collection of regional political portraits — which illuminate key areas of vulnerability and strength, and cooperation and conflict, in our interdependent world — includes chapters on the United States; the Soviet Union; Western Europe; Eastern Europe; the Middle East; the Persian Gulf; South, Northeast, and Southeast Asia; Southern Africa; and Central America.

September 1987 296 pages
0-88730-253-X cloth, $29.95
READER ORDER CARD NO. 7

Just Published

MILITARY WITHDRAWAL FROM POLITICS

A Comparative Study

Talukder Maniruzzaman

The first systematic and comparative study of military withdrawal from politics at the international level — in countries such as Syria, Iraq, Benin, Mexico, Argentina, Brazil, Colombia, Cuba, and Turkey — this book fills an important gap in the literature on political transition and revolution.

March 1987 272 pages
0-88730-147-9 cloth, $29.95
READER ORDER CARD NO. 9

BALLINGER
PUBLISHING COMPANY

Harper & Row
2350 Virginia Avenue
Hagerstown, MD 21740

YES! Please send me:
___ **REGIONAL SECURITY** (6612303) $29.95
___ **STRATEGIC DEFENSES**
☐ (6611974) cloth $29.95 ☐ (6612030) paper $16.95
___ **MILITARY WITHDRAWAL FROM POLITICS**
(6611636) $29.95
___ **LIMITING NUCLEAR PROLIFERATION**
(6610141) $29.95

☐ Payment enclosed ☐ Bill me
Charge my ☐ MC ☐ VISA ☐ AMX
Card no. ______________ Exp. date ______
Signature ______________
Send to: ______________
____
______________ Zip ______

My state sales tax $ ______
Postage/handling ($1.50/bk)* $ ______
***Prepaid orders are postage free!**
TOTAL $ ______

To order, simply circle the corresponding number(s) on the Reader Order Card, or send in this convenient coupon

(800) 638-3030

Prices subject to change. All orders subject to credit approval. U.S. funds only. If you order by phone, tell the operator your order code is **ABAS787**